AMERICAN GAS JOURNAL

SEPTEMBER, 1937

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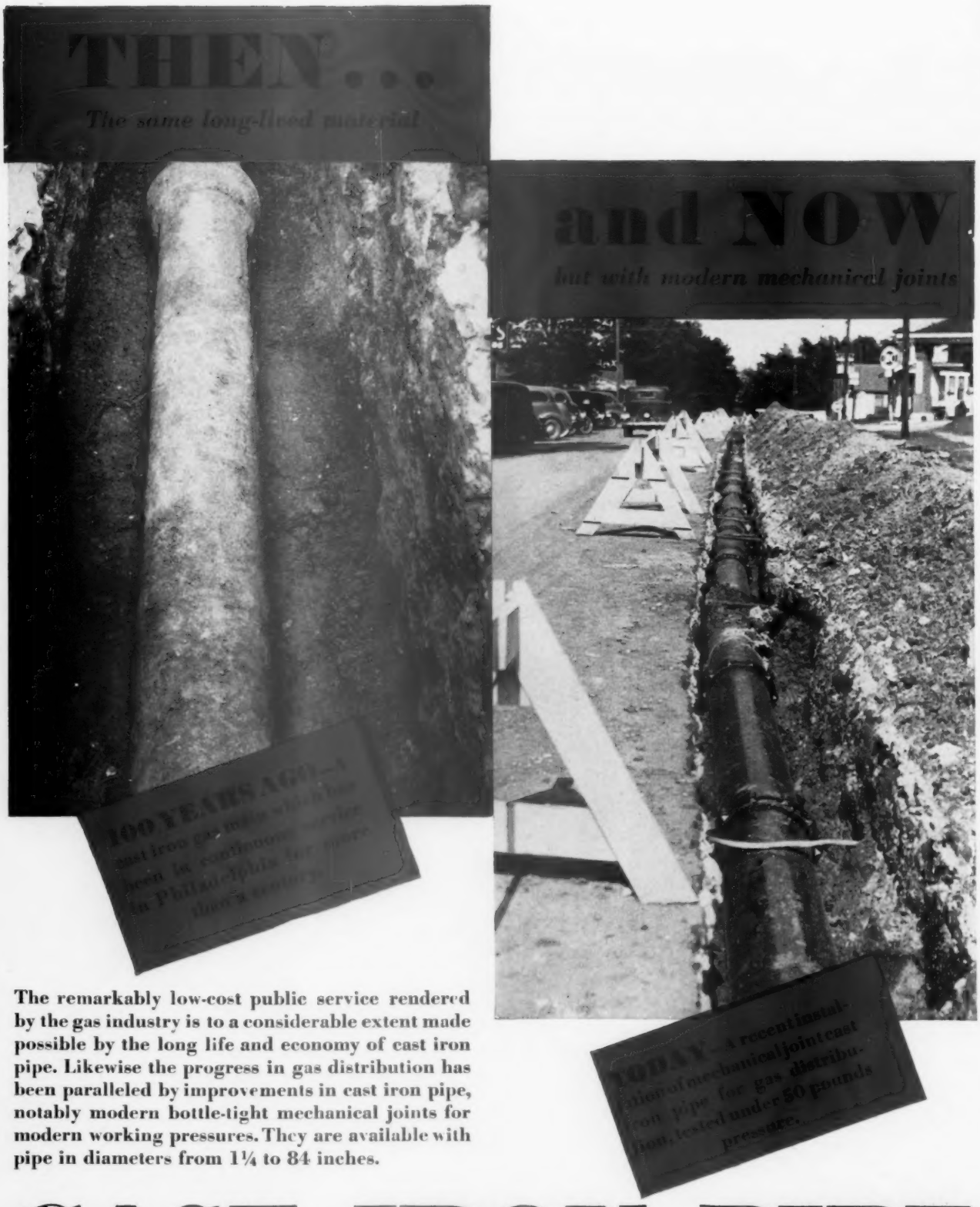

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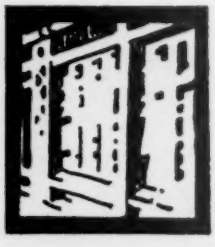

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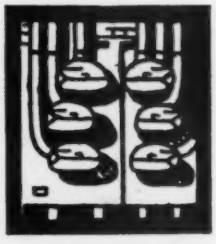

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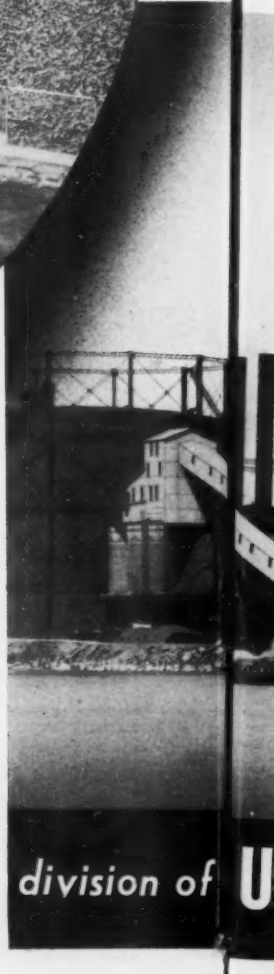

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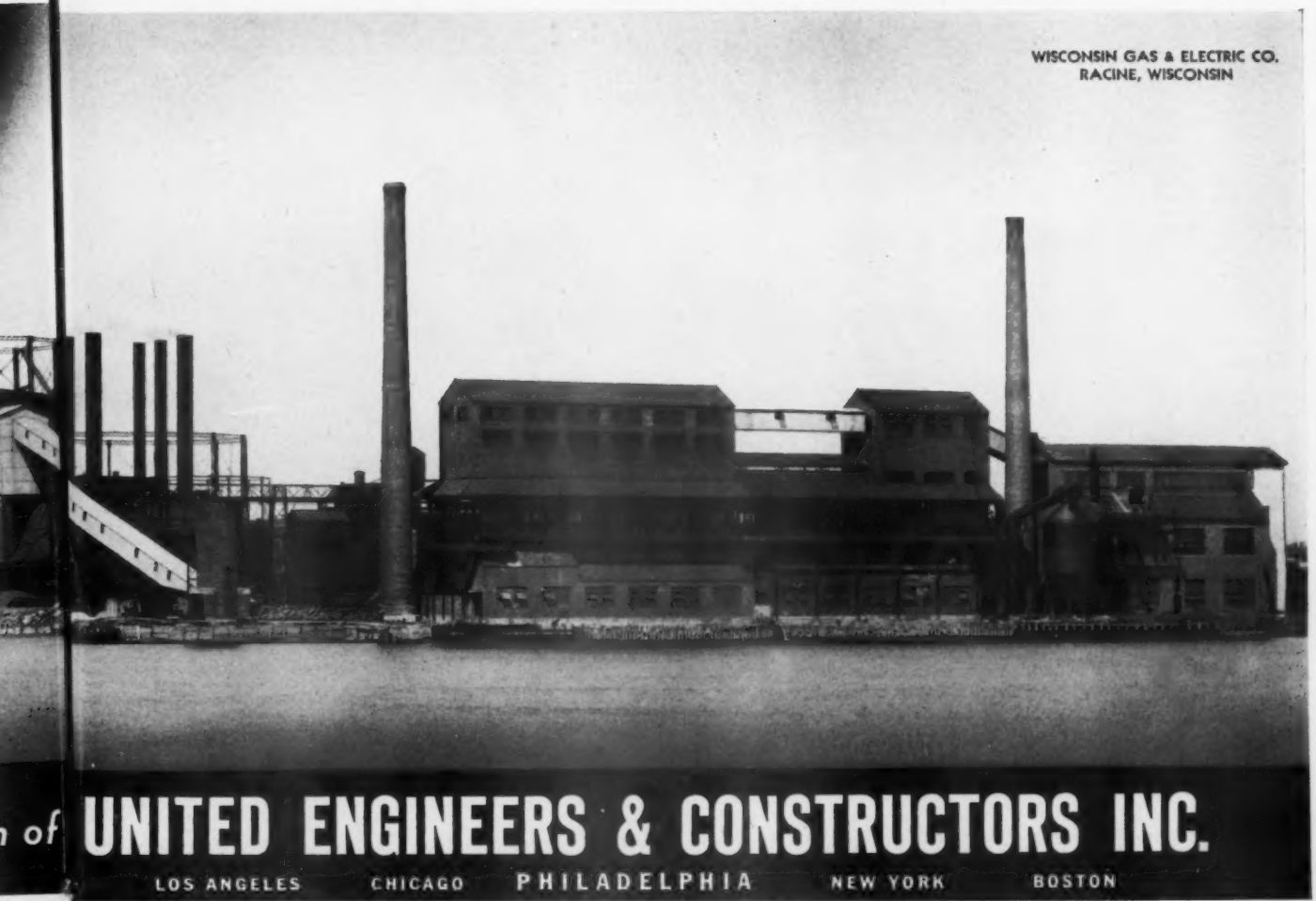

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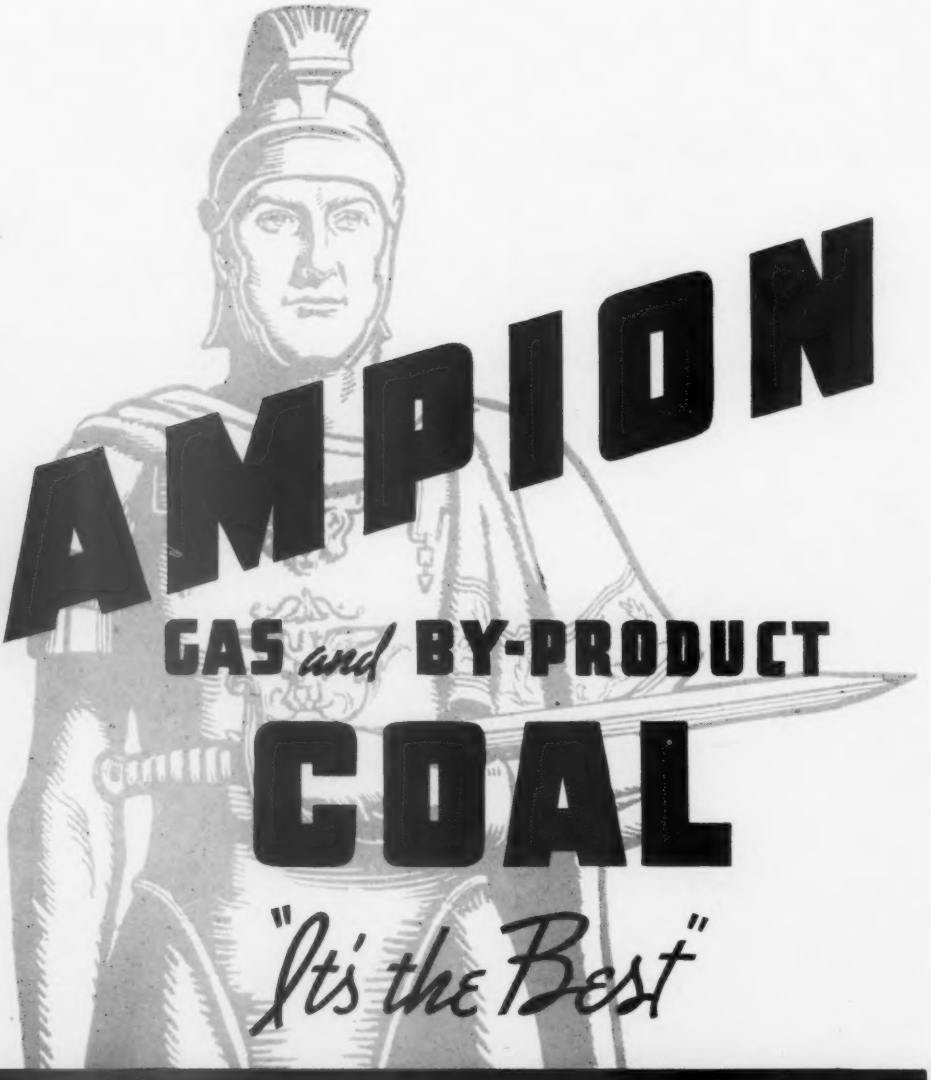

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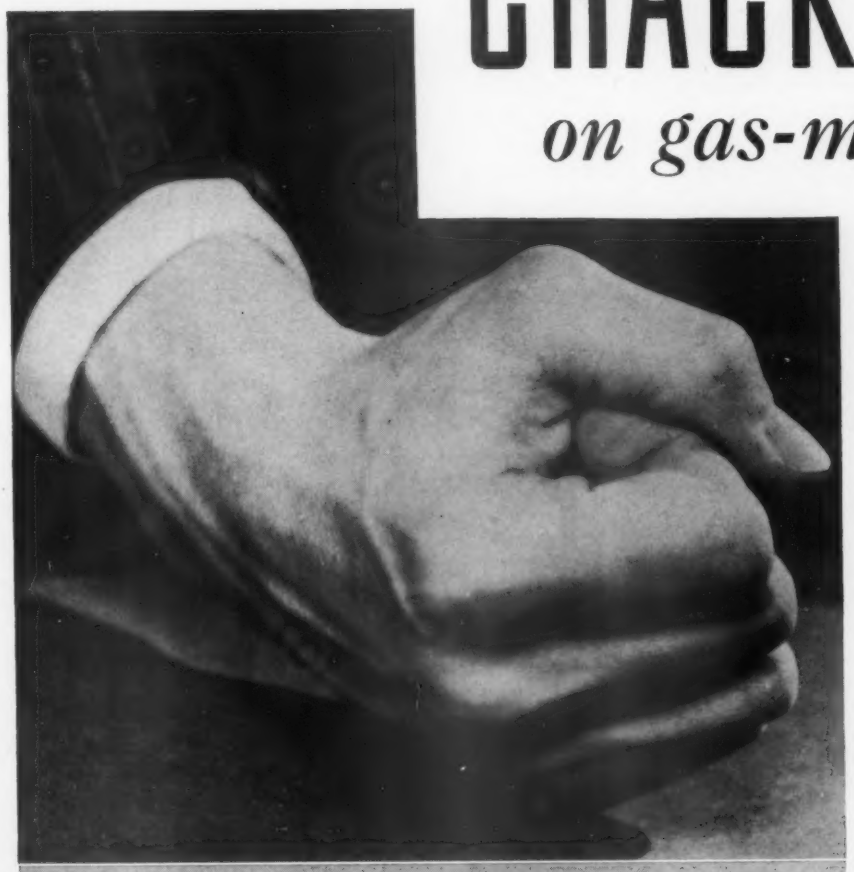

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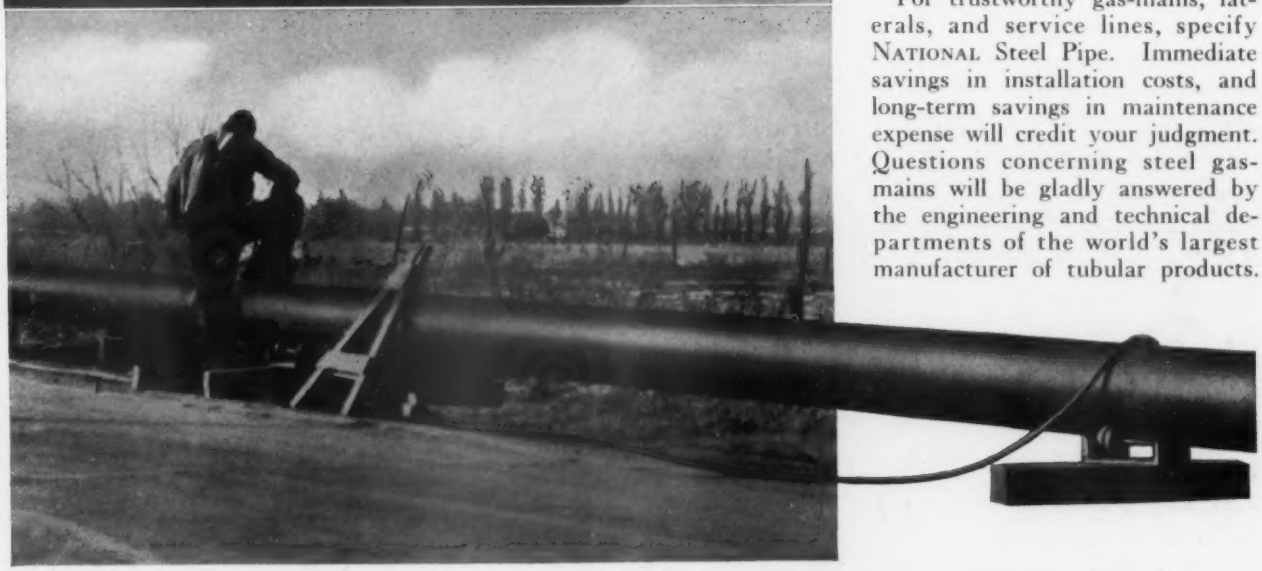

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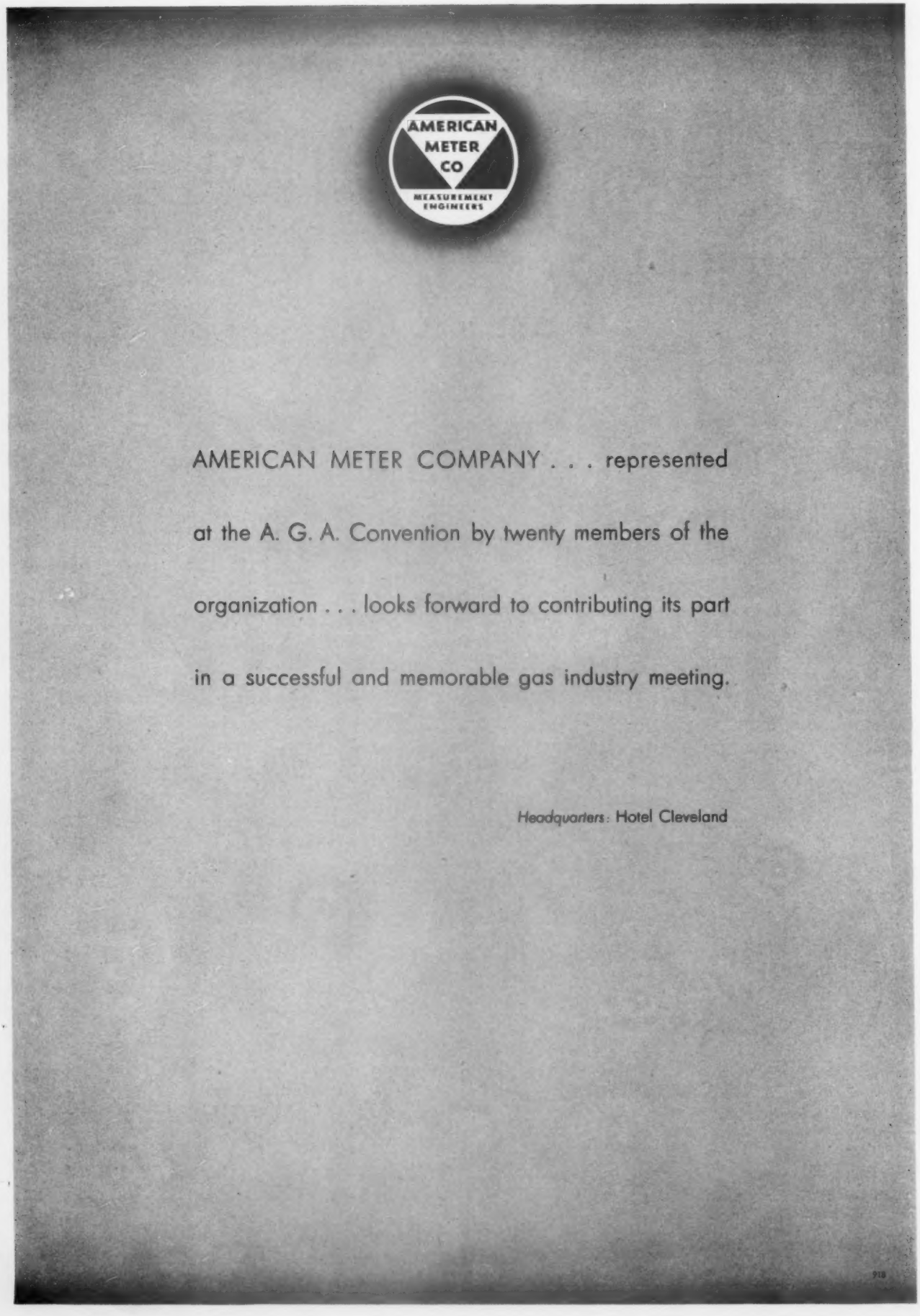
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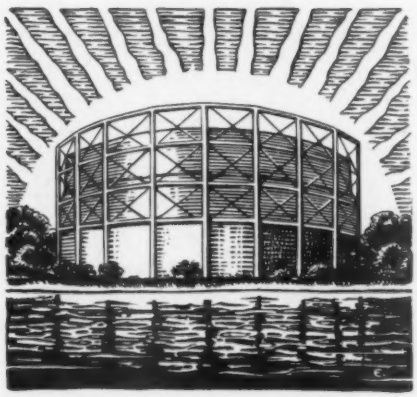

And What of Tomorrow?

By

An Industrial Analyst

TODAY, like many another major American industry, the gas industry is in a state of flux. Its character is changing. Many of the old truisms and axioms of operation that brought results a few years ago are no longer safe guides. One can sense on all sides, even in a period of improving business, the uncertainty and hesitation that profound changes invariably produce in men's minds. To a large extent the future of any single gas company depends on the ability of its heads to recognize and understand the shifting forces now in motion.

Yesterday, the chief problems of the gas industry were financial, engineering, and technical. Tomorrow—and the sunrise of that tomorrow is here now—the dominant problem of utility operation will be sales. Not sales merely in the familiar sense of maintaining or increasing the load—but sales as the motivating element of company policy, integrated more closely than ever before with rates, load-factor improvement, research, construction, finance, public relations, competition, and employee morale—sales as the blood-pumping heart of the operating body. The one practical safeguard against the dangers that beset the industry on all sides—danger of political assault, danger of competitive aggression—is a rapid development of the potential market. Only such a development will permit flexibility of rate structure and foster sound public relations on the one hand, and will attract investment capital and make for progressive engineering advances on the other.

The author of this article, who prefers to remain anonymous, has had unusual opportunities for impartial objective observation of the gas industry for many years. The editors believe that his views and convictions have genuine significance at this time, and will awaken affirmative response among thoughtful readers.

The chief source of strength for gas companies hereafter will be their proven ability to serve well the combined interests of the consuming and investing public. The sign of that strength will be a steadily increasing volume of sales. The companies that fail to make themselves strong in this sense are likely to be tomorrow's victims of the pernicious anaemia that invariably attacks the undernourished of the business world.

In making itself strong, the industry needs first of all to accept the cold fact that the monopolistic character of the gas operation is almost dead, alive only in a legal sense. Protected against direct competition until their forces of self-defense were weakened by disuse, gas companies in recent years suddenly found themselves threatened by a more dangerous form of competition—competition by substitution. Slowly — too slowly — some companies have developed the power to fight back. They have learned to regard themselves not as monopolies, but as competitive businesses like any other. But for many units of the industry the great test still lies ahead.

To ignore this rapidly crystallizing situation is to play the ostrich. Sales planning, sales management, and selling are key words henceforth. The last vestiges of monopolistic thinking must be discarded in favor of competitive realism.

Action—Not Lip Service—Is Needed

It is not enough to say, "Yes, sales are becoming more important." Lip service to this idea will get us nowhere. What is needed is unified action by the industry as a whole, and by the men who lead the individual companies — action to meet the terrific threats which are going to arise in every quarter as other industries drive for more business, and as politicians revive old material for demagogic speeches.

What are the chances of getting such unified action? Let us speak frankly. The industry is dominated, in many quarters, by men whose chief interest is in the technical and financial aspects of gas company operation, and who, with the best will in the world, are not sales-minded. To this group must be added the die-hard conservatives who refuse to admit the possibility of change, and the routine-minded men who are so close to their own problems that they cannot see a new development until it has crashed on their heads. Together these elements offer an inert resistance to forward-looking measures that can only be overcome by a mighty effort.

To realize the weight of this inertia, and how it drags on the industry as a whole, one only has to consider what happens when a constructive cooperative program is undertaken.

A good example is the sales-training plan made available by the American Gas Association six or seven years ago. This plan was taken up by many companies, received wide acclaim, and produced notable results. But—and this is the point—the companies which seized upon it as an opportunity represented, for the most part, the cream of the industry—the companies which were already doing an outstanding job in sales, and which realized the importance of doing a still better job. The "milk" of the industry — the companies which most needed improvement in the selling operation—gave only lukewarm support.

It is not too much to say that the rank and file of the personnel of many companies were denied a valuable sales tool because the men at the top were not sufficiently sales-minded to see its value, or sufficiently industry-minded to grasp the broad significance of the Association's offer.

Another more recent example is the three-year national advertising campaign sponsored by the Association at a cost of $500,000 a year. This program in itself has been a success. But everyone familiar with the facts must have been struck by the conspicuous tardiness of many companies to tie-in their own advertising with the national campaign, and to take advantage of the syndicated material made available by the Association. While this situation has lately been rectified, the initial failure undoubtedly delayed the full potential cumulative effect of the campaign.

Executives of certain utility companies have perhaps not sufficiently taken into consideration the extent to which their individual practices affect one another. If companies A, B, and C do a good selling job, say in house-heating, then Company D, which has done little, nevertheless receives a certain benefit thereby through the increasd general popularity of gas-heating. On the other hand, if companies A. B. and C fail to meet the competition of the oil-burner dealers in their towns, then company D may find itself faced with greatly encouraged and extremely aggressive oil-burner competition, even though its own sales efforts have been strenuous. In this way, the weaker companies act as a brake upon the stronger, through affecting the competitive position of the industry as a whole. Similarly, when only one company out of every two participates in a co-operative sales program, the companies which participate get only part of the benefit which might accrue if all companies were pushing hard in the same direction.

The relatively slow and spotty progress of certain uses of gas, in spite of many advantages for the consumer, may be ascribed in parts to the fact that the scattered efforts of individual companies were allowed to take the place of industry-wide unified activity.

Can the Minds of the Industry Be Mobilized?

Under such conditions it is not enough to talk about sales campaigns. The need is for a sales crusade—for a change in attitude among the gas company officials who can make or break campaigns. The time is here when every gas company executive ought to ask himself, and answer honestly, "Have I, up to now, done enough for the sales development of my company and of the industry? Have I imbued my officers and our employees with the feeling that our sales operation is of paramount importance? Have I allowed our sales organization to become routine-minded when it could have been alert and on its toes? Have I used every modern method and opportunity to build sales? Have I been on the side of inertia or on the side of the angels?" A little honest heart-searching along these lines could do a vast amount of good in many an executive office.

If the minds of the industry can be mobilized—if a dynamic spirit can be created which, starting from the top, will reach employees throughout each company—if this spirit can be spread from company to company until the industry as a whole is pulling in the same direction—if the industry can be purged of the remnants of its monopolistic sales traditions and outworn methods—then we can expect to see a steady and healthy growth in which every company will participate.

If we fail to develop such a spirit, on the other hand, we can expect to be subjected to ever-increasing pressure from without. On a total investment of over 5 billion dollars, the gas industry showed a yield in 1935 of 1.7% (1.2% for manufactured gas, and probably about 2.2% for natural gas, the total investments in these fields being about the same). Certainly, this is not adequate. What is more, over large sectors of the industry, the average revenue per dollar of invested capital has been static or shrinking for a considerable period. This tendency cannot be allowed to continue indefinitely, nor can it be safely ignored or condoned today. It will be reversed only when the men who lead the industry are fully awakened to the futility of a defensive struggle in which competitive tactics are feebly imitated, and succeed in bringing about a powerful, unified counter-attack on the sales front.

II

The executive who chooses to align himself with the progressive forces in the industry is confronted at once with the problem of planning a sales operation that ties in at every point with the other aspects of his company's situation. This in many cases requires a new attitude with respect to the sales department's estimates and programs. For these estimates and programs, instead of being mere appendages of the general company plan, now become its basis.

Modern Sales Planning

This is not to say that the anticipations of the sales department should be allowed to dictate all policy. Far from it. **The ever-present requirements of the ponderous fixed plant, the unstable character of the money market, the public relations problem, and the nature of competition from other industries must serve as guide ropes; it is only by holding onto them that safe progress can be made.** The executive who loses his hold on these ropes and strikes out enthusiasti-

cally for Never-Never Land where sales grow in wild profusion, on every bush, seldom returns. But within the limits of the financial and engineering requirements, of public relations and competition, the rapid and complete development of the market is the logical goal for every responsible executive. And it is at this goal that the sound sales plan aims.

Yet in how many companies is a comprehensive sales plan based upon verified data and looking well into the future a standard element in executive thinking? If in more than a few, then the fact has been kept remarkably quiet. Some form of sales estimates are commonplace enough; but these are usually little more than wishful guesses by the sales manager. Lacking the foundation of an adequate market analysis, these hasty estimates seldom consider all of the essential factors —the relation of the anticipated send-out to the total business available, or possible additional increase in send-out through modifications in sales department policy and methods.

It is probably safe to say that two gas companies out of three have never faced squarely the problem of planning the sales operation in the light of complete, modern data. Yet it is obvious that the management of a company operating without a sound sales plan is in the position of a general trying to fight a war without a plan of campaign—at the mercy of every move made by the enemy, and of every change of circumstance.

No doubt the relatively small attention given to sales planning in the gas industry is due in part to the fact that the executives competent to make such plans are generally up to their eyes in important and immediate work. This reason, however, is not really valid. After all, the chief function of the top executive is to plan, and if he fails to devote most of his time to planning, then he is making improper use of his time. Nor is the procedure of sales planning the least abstruse; it only requires initiative and earnest work on the part of the sales executives, and comprehension on the part of the company's head.

Three Steps in the Sales Plan: Step One—Market Analysis

Even at the risk of laboring the obvious, it seems desirable to define more precisely what is meant here by sales planning. Experience shows that the words "sale plan" often mean one thing to one man, and quite another to a second. Yet in companies which have gone far in this field there is a similarity of practice which indicates that sales planning should follow fairly specific lines.

In these companies, there are three major steps in the sales department's planning procedure; first, making a broad and thorough market analysis; second, forecasting sales in the light of complete information and estimating costs and revenues involved in realizing the forecast; third, scheduling sales action in accordance with the forecast. Experience shows that all of these steps are entirely feasible in every company.

Underlying the entire sales plan must be the market analysis—facts and figures showing the present and future uses of gas in the territory; the size of the present market for each use and the present degree of saturation; the competitive price situation with respect to each use; and the future potential market at assumed prices for gas. This knowledge cannot be left to guesswork. Only a careful survey can provide the essential data. If the sales department is not yet organized to obtain these data, then someone needs to take the responsibility for so organizing it. There are trained outside organizations which can be retained for this work, if necessary. Once under way, the survey can be carried on continuously with relatively little effort, so as to keep the information always up to date.

Step Two: Forecasting and Estimating

With his knowledge of the facts, the experienced sales department head can state with some confidence his company's chances of getting business. His forecast may well have two broad divisions: first, a general forecast of company development covering perhaps fifteen years — a long-term statement of objectives and rough estimates of revenues and costs; second, a comprehensive and detailed forecast for perhaps five years. He can figure the probable increase in sales based upon an assumed promotional rate structure and known population trends; he can compute how much business might be attached by specific, practicable improvements in the merchandising and selling of appliances, or by new industrial sales tactics. In many companies the study of these and related problems is revealing possibilities of the greatest importance.

After the forecast of the load-trend is made, corresponding estimates of gross revenues, and of expenses for construction, operation, and financial charges can be developed with relatively little trouble. In this connection it is important that sales expense should be regarded not as an immediate operating expense — generally a short-sighted policy—but rather as an investment to be amortized over a period of years. Gas company accounting practice, too, needs to be "sales-slanted."

It is not essential that the sales estimates be absolutely accurate. **Even if a forecast is 10% out of the way, it is of value so long as it provides a definite program of action for the company. For experience shows that almost any program of action is better than no program at all.**

Step Three—Scheduling

With the forecast and estimates naturally goes the detailed sales program — the spearhead of the company's operations. This program defines and schedules sales activities for the future. It shows, step by step, the procedures which the sales department intends to follow in order to secure the load-increases anticipated.

Occasionally a kind of mental petrification overtakes the minds of men in responsible positions, and makes it almost impossible for them to depart from traditional ways, or to entertain new ideas. Everyone knows one or two such men. Yet most of us have in ourselves the germ of this same disease. We tend to fight shy of that which has not been done before unless someone takes the pains to break down our resistance and persuade us of the necessity for change. Too often gas company executives have moved into action when it was too late, after electrical or oil competition or dealer antagonism have caused serious losses, not easily made up. One important purpose of the sales program is to make it easy for executives to consider changes in policy and method well ahead of time, to get used to the notion of such changes.

Dealer and contractor relations, appliance merchandising and sales policies, salesmen's compensation plans, the hiring, training, and management of salesmen, advertising sales promotion, sales equip-

ment, manufacturers' selling cooperation, consumer service and public relations need to be discussed in detail, and the expected results of changes from previous policy pointed out.

The planned sales program eliminates spasmodic, sporadic, expensive sales drives, and replaces them by controlled pressure at the points where pressure will bring results.

Naturally, the program must be flexible; it must permit of adjustments to meet unexpected competitive developments. But it should be a complete and integrated whole—an expression of company policy, not of executive impulse.

Developing the Company Plan on the Basis of the Sales Plan

The sales executive of the company is of course responsible for the sales plan. But his responsibility does not end with preparing it and turning it over to the company head. Its validity must be tested by the engineering, operating, and financial chiefs of the company. Department heads, not all of whom can be expected to grasp sales problems easily, need to be convinced of the feasibility and wisdom of the plan in order to ensure their full cooperation. Once a unity of executive viewpoint is established, it will give birth to a complete, coordinated plan of general company development, approved and understood by all concerned.

The company head who makes use of this type of planning almost always discovers an increasing need for cooperation with other gas companies. The exchange of information becomes more and more important to him. Research and promotional projects highly desirable but too expensive for his company to undertake alone, become practicable through cooperative methods. Experience reveals the dollars-and-cents value of mutual aid. Cooperation helps in building profitable load. That is the simple fact.

Every gas company executive can do three specific things to insure the progress of his company:

1. **Plan a broad sales operation based upon ascertained fact, and make this sales plan the foundation of the company plan.**
2. **Give willing and full cooperation to industry-wide projects.**
3. **Work to make all company employees sales-minded and good-will minded.**

In these three simple ideas lie the essence of the successful gas operation of the future.

III

Let us digress for a moment. It is not customary to expect busy business men to read fairy-tales. But there is an old Bavarian legend which so obviously deserves to be blazoned in letters of gold on the walls of the men who run the gas business, that to omit it here would be a sin.

Once upon a time, the legend says, there were three brothers, Peter, Otto, and Hans, who lived in a hut in a forest clearing. Now they would have been very happy in their work as woodchoppers were it not for a terrible fear that hung over them night and day. In the same forest there lived a great and ferocious dragon that had the abominable habit of creeping stealthily upon its prey, and devouring it at one horrible gulp. Many of the other woodchoppers in the forest had already fallen victims to this dragon, and Peter, Otto, and Hans never knew when their turn might come. They would often sit up all night fretting and worrying, and trying to listen for the dragon's footsteps.

One day, however, the three brothers had a stroke of luck, for they found a wounded sparrow, and nursed it back to health. As usual, this sparrow turned out to be a powerful fairy, who offered to transform the brothers in any way they wished to show her gratitude.

Peter, the eldest, spoke up first. He said, "Aha! That's fine! I know exactly what I want. Transform me into a giant two miles high, so I can go striding over continents and seas, and travel all the world for an afternoon's stroll. Then I won't care about dragons. Why, when I see one I'll merely crush it underfoot."

Peter's Mistake

No sooner said than done; the sparrow waved a wing, and in an instant the whole forest was like a fine grass lawn at Peter's feet. For a while he tried to see the dragon, thinking that he would kill it at once; but he could see nothing at all except the barely visible tops of the trees two miles below, and even these were obscured by the clouds that went drifting around his neck. Finally he got tired of searching for what was, after all, a very petty sort of insect, and went striding away to visit India. On the way it struck him that everything in the world was really absurdly small; Niagara was merely like the bathroom tap turned on, and the Himalayas were hardly more than good-sized ant hills. At last, in sheer boredom, he lay down to sleep on what looked like a solid island in the Arabian sea. But as bad luck would have it, his weight was too much for the island, which was really only coral and sand; and it sank beneath the sea, and Peter was drowned.

What Otto Overlooked

The second brother, Otto, was not at all impressed with Peter's wish; it struck him as stupid. He had other notions, very canny and shrewd. He said, "What? Let yourself be two miles high, where every enemy can see you and get at you? Not for me. No, I want to be only half-an-inch high. Then I can hide behind any leaf and never be found; I can live on nuts, and drink the dew. Oh, mine will be a splendidly simple, secure, economical life. And when the dragon comes, he will never see me, so I shall be safe."

Of course, immediately he was half-an-inch tall. He found himself hidden in the gloom of a tall jungle of waving grass that towered high over his head; and as for the real forest around him, he could not even see a tree. And a cricket, standing on a grass stem, appeared to be of such incredible ugliness and ferocity that it frightened him much more than the dragon ever had. He turned to run to the hut, which was only a few yards off, but in the tangle of grass and leaves and twigs, in the terrible new world of tiny things, he took the wrong turning, and got lost, and was never heard of again.

The Policy of Hans

Now the third brother, Hans, saw the folly of Peter's and Otto's requests. He thought very carefully before making his wish. Then he said, "Give me eyes that can see through trees, and ears that can hear sounds from afar." The sparrow chirped once approvingly, and flew away.

At once Hans heard a frightful snore, which he recognized as the dragon's, from a great distance. Looking in the direction whence the snore came, he saw right through the intervening trees, and perceived the dragon sleeping in his hidden lair, many miles away.

Thereupon Hans ran swiftly to another woodcutter who lived in the forest; and those two set out to tell the other woodcutters; until finally all the woodcutters in the forest were banded together, armed with their sharp axes.

These men now set out bravely toward the spot where Hans could see the dragon sleeping. They surrounded the dragon; and at a given signal they gave a great cry and rushed upon it, axes upraised. The dragon awoke with a start, and when it saw the flashing axe blades on all sides, it gave a horrible shriek, and turned over on its back and died, for it was a coward at heart. And the woodsmen with mutual congratulations returned to their huts and worked in peace ever after; and Hans was the happiest among them.

Pointing the Moral

Such is the severe but salutary history of the three brothers. The moral hardly needs to be pointed. Today the gas industry, like every other, is full of Peters, their heads in the clouds; and of Ottos, lost in a jungle of two-inch grass. And even the Hanses, who can look through the trees into the distance where the dragon lurks, can do nothing unless the rest of us woodcutters rally to their side.

Clearer vision and greater cooperation—these are tomorrow's needs if the gas industry is to go forward. We must face honestly the dangers that confront us, mark our objectives distinctly, and start working to reach them by reasonable methods. In this task, competitive conditions being what they are, the emphasis must be on sales; and sales planning must be given its rightful place at the heart of executive responsibility.

It is no longer enough for us to lift our eyes to the hills whence cometh our help. We have to lift the seats of our trousers from our chairs, and climb those hills.

The Gas Company and the Architect

By

Bertram A. Weber, A.I.A.

Put easy Housekeeping right in the Plans!
Let Gas take care of the 4 Big Jobs!
COOKING, refrigeration, water-heating and house-heating. These are the four BIG jobs when it comes to running a home. But they don't have to be *hard* jobs. Up-to-date GAS equipment can make them easy!
Gas house-heating and water-heating units need scarcely any attention from one year's end to another. They are clean and silent. And there's no problem of fuel storage or delivery. The modern gas range shortens kitchen hours. New automatic features make cooking easier—pleasanter. Gas refrigeration operates *silently* at small cost.
Get the up-to-date facts on how much GAS can do to make the homes you design really livable—and easy to run. Your local Gas Company will gladly cooperate with you in the selection and installation of gas equipment.
Be sure the Gas Appliances you specify carry the approved Seal of the American Gas Association Testing Laboratories.
AMERICAN GAS ASSOCIATION

HOW gas companies can best cooperate with architects in the work of planning new construction or alteration, is a question so ably worked out by the gas companies serving the territories in which the writer's major practice occurs, that it is somewhat difficult to do more than pat them on the back and say "keep it up, the architects like your helpful manner and the cooperation you are giving them."

The answer to this and the innumerable similar variants of this question might best be envisioned by a brief review of the functions of the architect, and the workings of the architect's office.

A dark secret about architects that I am about to divulge, is that the architect leads a Dr. Jekyll and Mr. Hyde existence. Popularly dramatized in the role of artist, dreamer, creator, and otherwise social personality, adopted for him by fiction and movie, the architect casts off this mask in his sanctum, the office, to meet the very practical and mundane need that these dreams and creations be translated into realities. It is the architect's business to do so.

On the left is a reproduction of full page advertisement to be run in Architectural papers —an example of A.G.A. cooperation with architects in the promotion of gas for the "4 Big Jobs." The scope of this activity will be greatly expanded to embrace a complete Home Planning Program which will be brought to the attention of the Convention in Cleveland in an address before the Commercial Section on September 28th.—Ed.

The client retains the architect to work out his building problems. This means that the architect is placed in a position of trust to find the best answer he can. Whatever the commission,—be it an office building, factory, residence, store or the small matter of additional equipment, it is his job to work it out.

The great variety of potential demand placed upon the architect and his office has turned the architect into a co-ordinator. The word co-ordinator is eminently suited to describe the architect of 1937. He is, after all, a very human person subject to the usual human frailities, and he individually does not attempt to be an expert or outstanding authority in the myriad fields of endeavor the building industry leads him into.

To him come the problems of planning specialized types of buildings; selection of construction materials; selection of the manufactured and raw materials; selection of equipment; methods of construction; newer and better processes, etc.; all of which individually are the result of many lifetimes of energy, effort, and research.

The more widespread and greater the practice of the architect the larger and more departmentalized is his office to meet the demands placed upon it. Larger offices have separate design, drafting room, structural, mechanical, and superintendent department heads, among whom the more complicated problems are divided. By and large the great majority of architects have small offices and work out their own problems.

The architect must know where to obtain the correct and best information available to aid him in making his decisions. He prefers unprejudiced advice and factual data.

It is to assist him and his clients, the public, in obtaining such information that so much publicity matter has been placed in catalogues for handy reference in the office. Most every architect's office treasures a carefully arranged filing system of catalogue material to serve as the mine of information at which he and his staff are constantly digging.

A service developed by many large corporations in the building field, is a personal architects, advisory service department, whose members keep architects posted on the newer developments and uses of their products, and is a service greatly appreciated by architects. Catalogues sometimes become out of date in the files, but architects always know that in calling upon a personal service department they are getting the last word in advice that the corporation or company offering this service can give.

You may ask, "How does this apply to the cooperation between the gas company and the architects?"

The gas company serves its public, among whom are the architects. The architect serves his clients who are the gas companies public. The architect's problems relating to the use of gas are those of the gas company.

The usual sequence of important questions dealing with the use of gas put to the architect by the client can be divided into three major groups:

How much will it cost to heat my house with gas? or, how much to heat my water?

A question of gas rates—if the architect knows through experience, or if carefully prepared published data on rates of house heating can be turned up in his handy files, he has a ready answer. A call to the gas company in the field where there is a gas sales or architects' service department, gives the gas company the opportunity of sending a man to the architect's office, where a study can be made and the client can receive a correct report. This means a satisfied client for the architect and a satisfied consumer for the gas company.

Next comes the query, "What equipment do you advise, what is the newest and best development for the use of gas to serve the particular point in question?"

The architect can answer this type of question only by information from three sources, personal experience and knowledge, (always limited); printed literature, (sometimes out of date); or, best of all, if made available to him, an informative service giving the result of research data collected by experience in the laboratories of the companies in the gas industries. Such a progressive service is now being carried on by leading gas companies to the great advantage of all concerned.

The third group of questions revolve themselves about the subject, "Is there any more recent and better method of installation?" The entire field of planning belongs to the third group. The architect is eager to assist in the progressive development of better installations of all types of equipment. This would encompass the subject of heating, air conditioning, kitchen planning and equipment, laundries, the uses of gas in industrial work, if that be the problem, etc. Here lies a great field for mutual cooperation between the gas company and the architect.

The architect leans upon the gas industries and their research staffs for unprejudiced and correct data on equipments and installation methods. Leading companies, and research institutes supported by groups of companies have this information. The trial and error method resulting from inadequate knowledge and information sources necessarily are detrimental to all factors concerned, the gas industries, the architects, and the consumers.

The plea could well be made by the architects to the companies in the gas industries, to make readily available the information which will enable them to plan the proper use of gas, the correct equipment and most advanced methods of installation. Closer cooperation could readily result in more satisfied customers for the gas companies and more satisfied clients for the architects.

Model Gas Homes in Portland, Ore.

Four homes—completely equipped with gas—out of the initial group of ten built to sell in the medium price bracket, were recently opened for public inspection each day from 9 A.M. to 9 P.M., in Portland, Ore., according to the announcement made by Lee Wilson, president of the Oregon Housing corporation, owners.

This group of four homes are the first to be completed of the ten under construction. They are the first four units finished of the 35 planned for 1937.

"We are happy to open our first four homes to the public so that they can see how much quality construction can be obtained in a moderately priced home which is properly built," said Mr. Wilson. "We believe the public is interested in real homes and we have designed and built real homes in this group with first grade materials throughout."

As soon as the other six houses are completed, which will be within the month, they will be open for public inspection also.

All the houses are Colonial, Cape Cod and bungalow construction with five and six rooms. The five-room houses have all the rooms on the first floor with an unfinished attic which is large enough for two additional rooms and a bath.

The homes are fitted with gas appliances; modern ranges, refrigerators, water heaters, and househeating plants because the builders feel that gas is the preferred fuel in the Portland area. Their plan for fitting the houses with gas is in keeping with the selection of gas for all services by most of the new home owners in this area.

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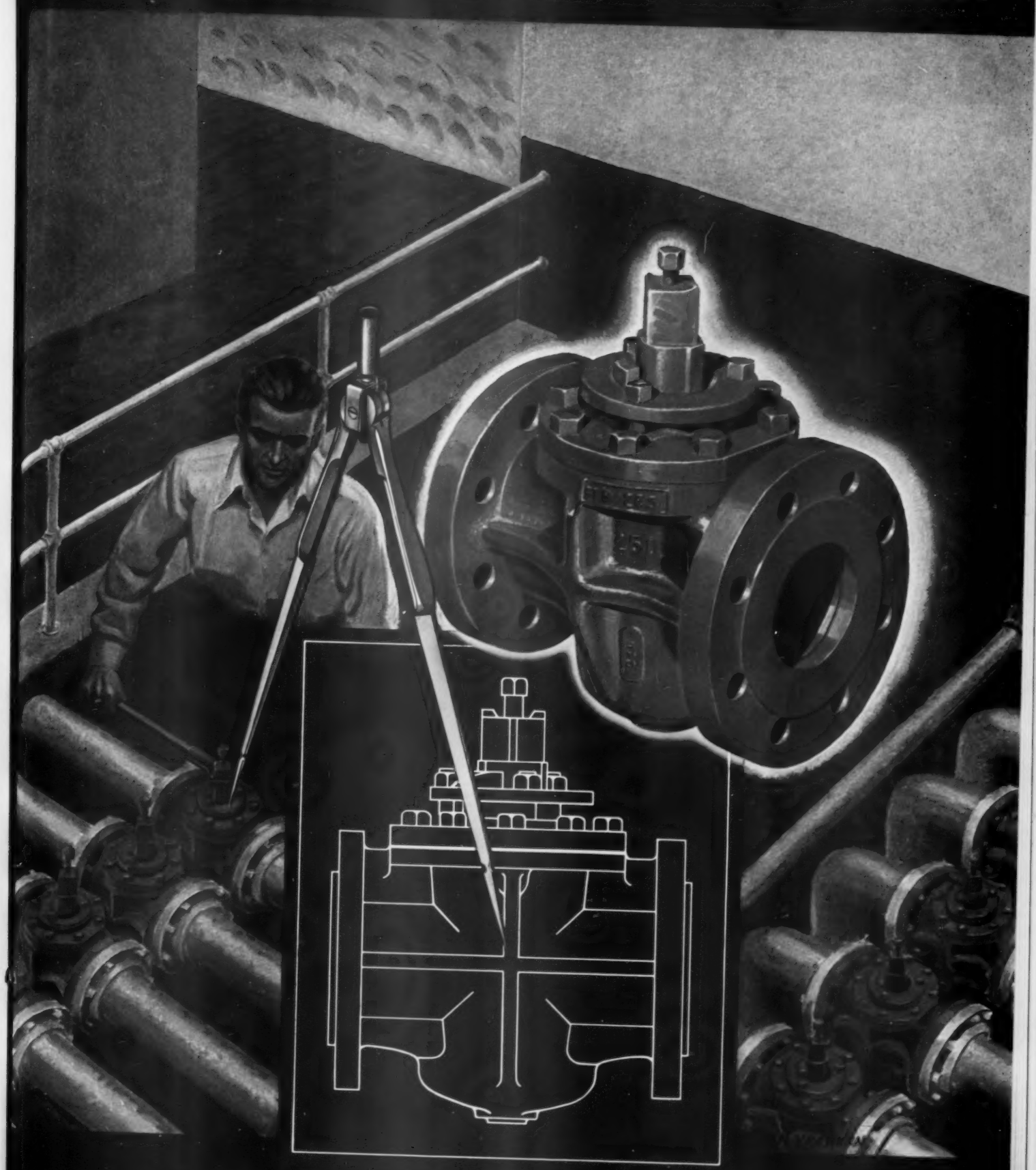

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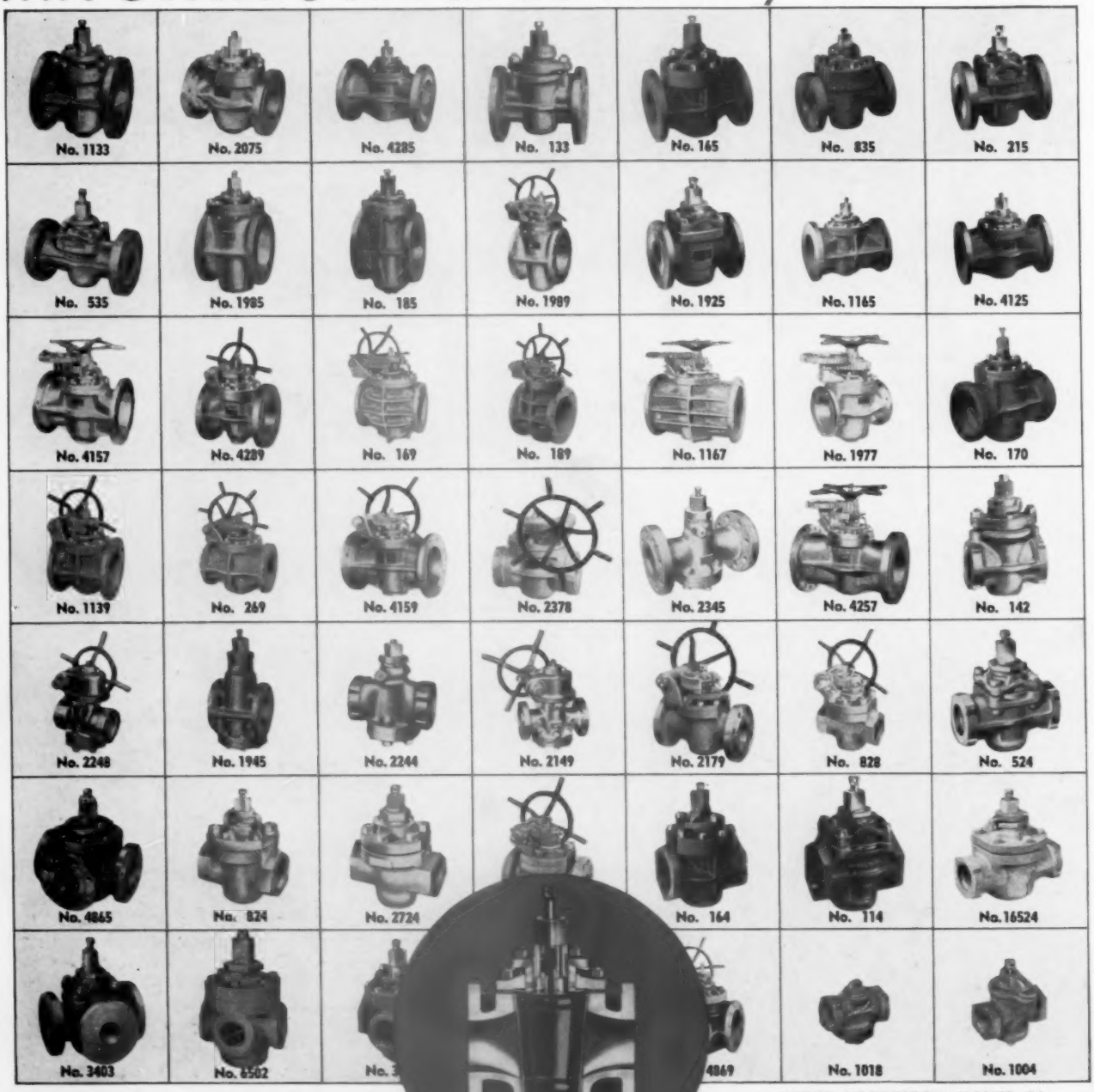

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Pipe Corrosion and Coatings

Pipe Corrosion Protection

By Erick Larson

Part 15

PIPE coating is the material applied to pipe surfaces for the purpose of isolating the pipe metal from corroding agents. The coating may be a metal or a substance materially different from the body of the pipe.

Shields or wrappers are materials used to protect the coating from injurious physical forces.

Pipe corrosion protection is coating or the combination of coating and wrapping when both are used.

Purpose

The effectiveness of pipe coating depends upon the thoroughness with which its purpose of isolating corroding agents from the pipe walls is accomplished. The corroding agents may be physical, chemical, or electrical in nature or a combination of any or all such forces. The purpose may be qualified by limiting the time during which corrosion protection is desired due to a life requirement having definite limits.

Necessity

A general impression exists that corrosion does not generally occur to a degree warranting protection except in extremely corrosive soils or hot spots. This viewpoint can not be reconciled with the findings of the Bureau of Standards, American Gas Association and American Petroleum Institute burial tests previously mentioned nor with the experience of independent corrosion authorities. The Bureau of Standards and Associations burial locations were selected so as to include all sections of the country. The soils selected varied in corrosiveness from mild to extreme. The results of these tests definitely indicate that corrosion is serious in all localities even though ultimate replacement is not necessary within the active life of the engineer responsible for the initial installation. The general need for protection should not be hidden beyond a smoke screen of a few widely publicized locations where the life span is measured in hundreds of years. The engineer must deal with the minimum life for safety and the average life for economy. Eventually even rate engineers must recognize the inevitableness of failure by corrosion and demand actual facts. Circus freaks are no more representative of the average individual than a single 400 year old metal main is of the average life of all pipe.

Service replacements have been and will continue to be a high percentage of the total service installations and the ratio will increase. The cost of protecting all services in new territories, therefore, will not materially increase investment. The policy of protecting all services where others have failed from corrosion will eventually result in coated pipe in all corrosive soils. This practice would result in the use of coatings only where necessary thus minimizing the ultimate investment.

The greatest necessity for protection exists on service pipes. The following table is a summary of part of an American Gas Association survey in 1934 of 124 companies reporting 4,169,000 services.

AVERAGE LIFE OF SERVICES

Years of Life	Number of Companies	Number of Services
0-10	5	140,130
11-15	14	156,673
16-20	25	692,348
21-25	26	521,966
26-30	28	1,020,242
31-35	7	722,802
36-40	8	239,618
41-45	3	278,589
46-50	8	73,141
51-55	0	0
56-60	2	313,500
75	1	10,518

Averaging the years of life by service, the life expectancy is 26.9 years. The average by services is 30.7 years. Some of the life periods are admittedly estimated due to a lack of records. Gas leakage is a significant factor in pipe life. Such frequent occurrence of leakage as would occur with a 31 year life must result in considerable claims for damages. This factor, intangible in so far as the claims paid are seldom included in pipe protection economic studies, warrants serious consideration of protection.

Fig. 1 Pipe protection on the external surface of water pipe.

Localizing protection on services at particularly vulnerable spots, such as where they penetrate building walls is not a recommended practice. Records may indicate that the majority of failures occur at a localized spot but other sections of the same service may corrode at only a slightly less rate. The slight addition to pipe life from such a policy is seldom economical. The preferable method is to uniformly protect pipe with the best types of coating and additionally safeguard highly localized hot spots by increasing the amount of protection at those points.

Due to the thicker walls of larger sized pipe used for mains, penetration does not occur as rapidly as on service pipe under identical conditions. The seriousness of distribution main leakage both from a safety and an economic viewpoint would justify a proportionately larger investment for protection compared to services.

The frequent failure of field survey methods to indicate a corrosive soil adds to the necessity for protecting buried pipe. Failure to accurately predict soil corrosivity is not always due to the method employed but, particularly on distribution systems, to previously mentioned corrosive elements frequently dumped into the soil.

The considerable added life secured with modern pipe protection will eventually substantiate the use of long amortization periods and will lower the cost of repairs during life.

Limitations

It is assumed that when protection is applied an indefinite life is desired and therefore the type of coating used is of a proven superior quality. The general limitation is confining of discussion to coatings applied to the external surface of pipe, conduit, or tubing practically all of which is buried but which may occasionally be exposed to atmospheric corrosion. Internal corrosion is less difficult to prevent than external and therefore most of the qualities advantageous for an external coating are also of value internally. The coatings discussed are not restricted in application to certain metals such as steel. Cast iron has been installed with an external coating where conditions warranted.

The policy of restricting the application of coatings or types of coatings to pipe installed in certain soils is practiced on transmission lines but on distribution systems the preferable practice is to standardize on a protection which will resist the most severe general corrosion conditions encountered. A frequent experience on transmission lines has been that a more general initial use of the better grades of protection would have produced the best economic results. This experience is logical considering the previously mentioned fact that absence of a positive indication during field corrosion surveying does not eliminate a need for protection.

The various types of coatings are widely separated in quality of protection they provide. The axiom that a little is better than none does not apply to pipe coatings. Limiting investment can not justify the use of inferior coatings which experience has determined as of insignificant value in adding to the length of pipe life.

Requirements for Coatings

The general requirements of any sub-surface pipe coating are an adequate supply, simple and easy application, protection of the pipe from corrosion under all conditions and economy. Adequacy of supply is not an important factor at present as tar and asphalts are the basic materials used for the majority of coating materials and the supply is practically unlimited. The greases used are also derived from materials existing in large quantities.

Simplicity of application applies to the equipment needed to properly place the required amounts of material on the pipe. Mill or centralized application facilitates the use of the more effective but bulky or complicated machinery without inconvenience. Field application of coating is essential if for no other purpose than protection of field joints or repair of injured protection. The material used must be adaptable to simple field methods with the use of mechanical equipment and tools reduced to a minimum.

Ease of application concerns the physical and mental efforts required of the individuals applying the protection. A coating to be practical must be such that the ordinary main or service crew possesses the necessary skill and ability to make the application. Engineering supervision of each application is impractical. The amount of labor necessary should also be of a quality readily found in the usual organization.

There is a difference in the degree of simplicity and ease with which protection may be applied to short sections of distribution mains or services and transmission mains or complete systems. The latter allow the use of specialized crews and more satisfactory but also more complicated equipment than the former. The problems encountered in distribution system practices are more difficult to solve than on transmission lines and therefore, some phases such as protection are often neglected.

Fig. 2 Kraft paper damage may look bad but this protection is undamaged.

Protection of pipe from corrosion under all conditions requires a coating which can be uniformly applied without voids or thin spots and which is resistant to the chemical, physical and electrical forces encountered. A coating may meet all requirements of resistance to forces but if the material, design of protection or application results in bubbles or voids the unprotected portions would be subject to a concentrated corrosion which would materially decrease the life.

Resistance to destructive forces commences when the coating is applied and exists throughout the pipe life. Experience has demonstrated that coatings have been developed which can be economically justified. More detailed discussion of these general phases will follow.

Chemical Resistance

Pipe coating material must be chemically inert toward the pipe material; chemically unaffected by soil, bacteria, vegetation, water acids, alkalis, insects or other soil ingredients; and stable. All of the deteriorating chemical forces mentioned are encountered in each soil in varying degrees.

The common tar and asphalt base and grease coat-

ings do not directly act upon pipe material. Reaction between pipe and coating is mentioned as in the development of new coatings, laboratory tests do not always duplicate field conditions. The combination of a coating and some soil ingredient may react and produce a material which would dissolve or chemically react with the pipe. The chemical reaction with the pipe need only be minute in extent to destroy the bond between coating and pipe. The reaction therefore may be only indirectly the cause of deterioration. The finding of an extensive loss of bond between coating and pipe warrants investigating the possibility of a chemical reaction between the two.

Discoloration of the pipe surface noticed immediately following the removal of pipe coating may be indicative of a reaction between pipe and coating. There is also the possibility that the discoloration is due to oxidation the products of which were stained by ingredients of the primer or coating. The important factor is whether the action, oxidation or some other chemical reaction, caused the bond between pipe and coating to weaken or break. Discoloration in itself should not be taken as an indication of coating failure. Discoloration of pipe surfaces have been frequently noted but no example has come to the writers attention of a chemical reaction between primer or coating ingredients and pipe continuing a sufficient period to cause failure of the better grades of enamels or greases.

The chemical activity between protection materials and soils, water, acids and alkalies may generally be considered as a group. Very few pipe coatings of any type fail because of chemical reaction. The petroleum and tar base coatings which include greases are chemically inert toward soil ingredients. An outstanding exception is the disintegration of concrete under certain conditions which will be detailed when considering the use of cement coatings.

The solubility of materials used for coating or shields in liquids is the most important chemical consideration. Oils possess the ability to dissolve all of the commonly used coatings. The difficulty of protecting oil lines results from the effect on the coating of any leakage. The pipe field joint is the most common location of such leakage. The condensates in manufactured and some natural gases contain liquids which may be classified as oils and are as destructive to most coatings as the petroleum oils or their common derivatives. Joints on manufactured gas lines may not leak gas but may leak slight amounts of condensates. The harder coatings such as enamels and cement have a tendency to seal pores where gas oil or condensate leakage may occur. This tendency has been noted on high pressure lines carrying 100 pounds pressure. However, such sealing action can not be depended upon for an idefinite period and, therefore, joints should be given careful consideration.

While not strictly a solution the tendency of soils to absorb coatings affects the lasting qualities of the protection. Softer coatings are more susceptible to soil absorption than the harder ones. Greases, for instance, frequently are not visibly present on pipe after varying periods and may often be found in the surrounding soil. The rate of the soil absorption of coatings is partly dependent upon the type of soil. Heating of the pipe may often indicate the existence of greases on the pipe although invisible. There is a difference which must be recognized between the absorption of coatings by the soil and the effect caused by the scrubbing action of water which is moving downward through the soil. In the first instance of uniform absorption the soil all around the pipe becomes partly or fully saturated and the coating still provides the pipe some protection from corrosion but to a lesser degree than formerly. The scrubbing action of passing water carries the coating entirely downward leaving the pipe with less and less protection.

Low melting point asphalt coatings have also been observed which were absorbed by the soil. The indica-

Fig. 3 Damage from skids is low because of few tiers. Extra precaution of men holding back pipe used during exceptionally cold weather.

tion was the black discoloration of the soil for as great a distance as ½ inch from the pipe. The source of the discoloration was plainly evident from the decreased thickness of the coating and the appearance of the coating surface.

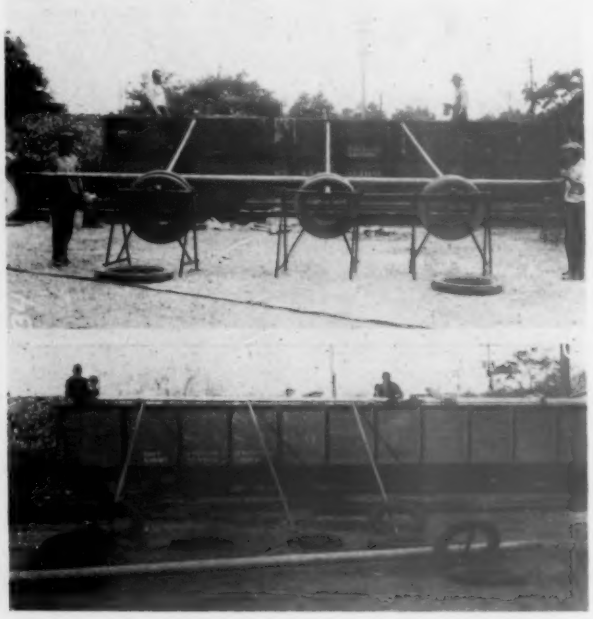
The solubility of coatings in liquids may be easily determined in the laboratory but the effect of soils is practically impossible to duplicate and therefore experience must be relied upon.

The necessity for coatings to be resistent to bacteriological action is becoming more evident as the intensiveness with which coating failures are examined is increased. Bacteriological destruction of pipe protection is included with chemical action as in many instances bacteria or fungus is the agent responsible for creation of agents which are chemically active with protecting material. The protection may provide a medium in which bacteria can rapidly propagate. The products generated incidental to such life and propagation may cause the protection to lose value. There has been discussion of food value for bacteria possessed by some coatings particularly grease types. The exact function of the protection in the existence of bacteria involves rather controversial theories. As a summary it may be stated that the softer coatings and particularly the jelly-like greases possess an environment in which bacteria thrive. The actual effect of bacteria or fungus on each

Fig. 4 Unloading 8 inch wrapped pipe without damage to protection.

make of such coatings must be determined by experience. Evidence is lacking to prove that bacteria have been instrumental in lowering the protection value of enamels or even thin paint coats of asphalts or tars. The lack of evidence is not conclusive as favorable conditions for bacteria to thrive do exist in some coatings particularly after water absorption has occurred. The shield in some instances is more readily attacked by bacteriological action than the coating.

Plant life, particularly in the form of roots, is an important cause of protection deterioration. The fact that this source of difficulty has been recognized only in the past ten years accounts for the lack of more extensive knowledge on the subject. At present observation has resulted in the conclusion that the major portion of protection destruction by roots is physical in nature rather than chemical. Plant food exists in all types of coatings and in some shields. Roots have the ability to penetrate most coatings and select the ingredient desired for food. The inclusion of materials in protection toxic to plant life have not been successful in prevent-



Figs. 5 and 6 Pipe Corrosion Protection is not damaged by these unloading methods.

ing the penetration of the protection by roots. Proper shielding is the most successful method of combating the effect of roots. More detailed discussion of the physical effects will occur under soil stress.

The requirements for chemical resistance apply to all the various parts of protection including the shield or wrapper. Wrapper, composed in part or whole of organic materials is susceptible to chemical deterioration. Bacteria are particularly effective in destroying organic wrappers. The impregnation of organic wrappers even to the point of super-saturation, with inert materials may delay the commencing of decay but can not prevent it. Organic wrappers have a comparatively short life in contrast with the inorganic materials. The failure of the organic wrapper is frequently the cause of an increased rate of deterioration of the coating.

Cellulose materials used for wrappers may be attacked by soils and therefore require protection from chemical reactions. This protection has been provided by one or more additional layers of the coating. Most coatings can not withstand the physical forces encountered and must be shielded by some type of wrapper which can resist the soil stress.

The wrapping of completed pipe protection with Kraft paper or similar material does not add to the corrosion resistance of the protection and therefore need not be considered in the requirements for protection. The purpose of such wrapping will be considered later.

Physical Resistance

Successful pipe protection requires resistance to the physical forces which tend to remove, displace or otherwise injure the materials and expose the pipe to corrosive elements. The deteriorating physical forces may be generally separated into two divisions, the first being those encountered between the time the protection is first applied and the pipe is buried and second, those encountered subsequent to the first period.

Pipe must be supported during and following the application of protection. The rolls or skids supporting the pipe tend to flatten the protection along the line of contact and produce an area of contact. The protection must be able to resist the compression tendency at least sufficiently to prevent the coating becoming too thin to serve its purpose. When pipe is rolled or skidded to temporary or permanent stock piles the contact between pipe and skids is over a comparatively small proportion of the length. The coating or the protection design must provide a structural strength sufficient to prevent injury to the coating.

Stock piles of protected pipe are frequently built up by alternate layers of pipe and spacers or separators. This practice provides for easy movement of the pipe but for the preservation of a wrapped protection the preferable method is to allow contact along the full length. This applies to any size protected pipe ordinarily stocked one above the other. Observation and measurement of 2" pipe stored 30 tiers high and 6" pipe ten tiers high after a full year of storage in New York State proved that no harmful injury had resulted to the protection although the contact lines on sides, top and bottom were clearly evident. The 2" pipe was stored inside and the 6" pipe outside with no protection from the elements. The protection of both consisted of tar base enamel of 180 degrees melting point, an asbestos wrapper, a thin coat of enamel above the wrapper and Kraft paper.

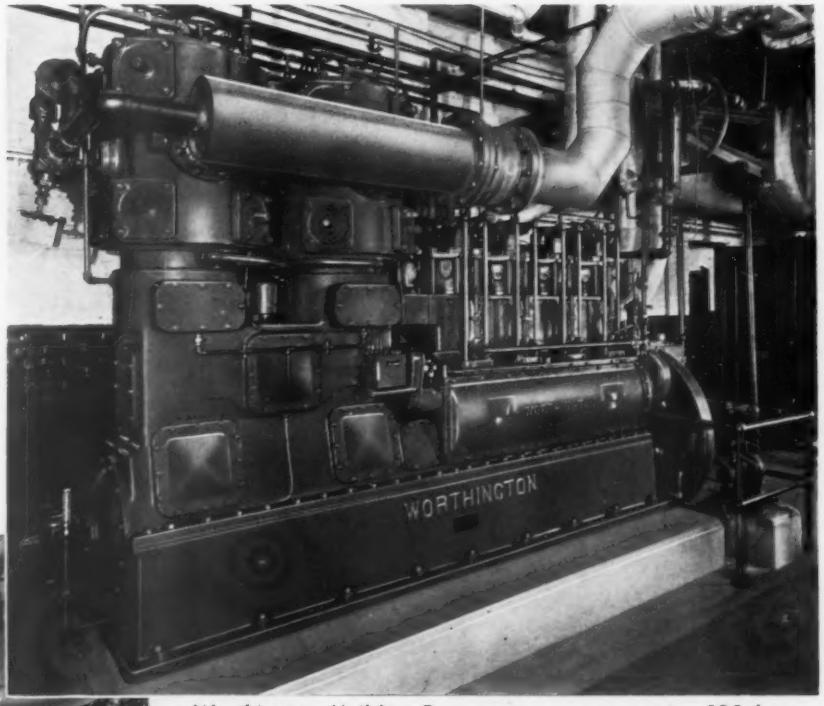
Non-wrapped pipe or that having a thick coat of enamel above the wrapper without Kraft paper can not be stored in contact as the enamel on adjacent pipes would become integral and break off when the pipe was moved. When wrapped with Kraft paper, enamel coated pipe may be temporarily stocked in contact with one another. The storage time would depend upon temperature conditions the time-depression effect of which could be determined by laboratory tests. The temperatures of the pipe, especially when stored outside, will reach maximums considerably above the atmosphere. Pipe protected only with a coating is seldom stored because of the damage in transit.

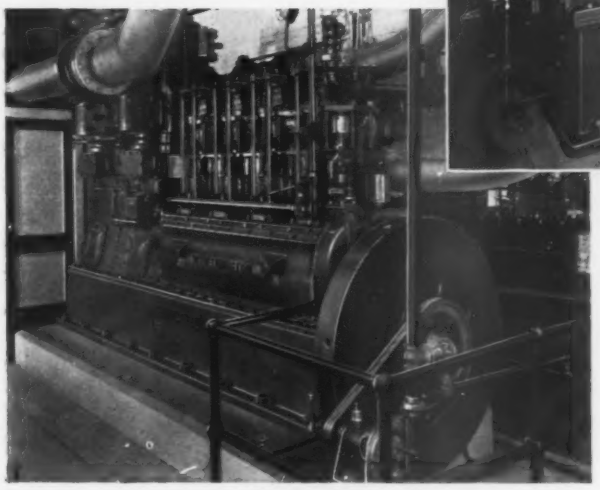
The practice of stocking wrapped pipes by supports only at the ends where no protection has been applied or where its damage will do no harm has been successful but offers more difficulty in the stocking and removal than other methods. The advantage gained may be more than lost by carelessness during stocking or removal due to the flexibility of the pipe. A direct blow on a ridged pipe may cause damage at that single spot

(Continued on page 108)

WORTHINGTON UNIBLOC GAS COMPRESSOR INCREASES STATION EFFICIENCY

Boston Consolidated Gas Co. selects this Worthington unit for its Allston (Massachusetts) Station . . . the third Worthington Compressor purchased for this station





Worthington Unibloc Compressor . . . gas engine 120 horsepower, gas compressor 50,000 cubic feet per hour. Discharge pressure 50 pounds per square inch

This compact UNIBLOC takes gas from holder, pumping it into a thirty-mile line, serving a number of towns. In continuous operation at high overall efficiency, this unit handles normal load requirements, eliminating partial load operation of other larger compressor units in the station, which latter are now cut in only to meet peak load demands.

Worthington engineers will assist you in any gas power problem . . . with 35 years of engine building and application experience to support their recommendations.

●

WORTHINGTON PUMP AND MACHINERY CORPORATION

General Offices: **HARRISON, NEW JERSEY** • *Branch Offices and Representatives in Principal Cities throughout the World*

WORTHINGTON

ATLANTA BOSTON BUFFALO CHICAGO CINCINNATI CLEVELAND DALLAS DENVER DETROIT EL PASO HOUSTON KANSAS CITY LOS ANGELES NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH ST. LOUIS ST. PAUL SAN FRANCISCO SEATTLE TULSA WASHINGTON

GC7-4

Another Mile-Stone

WE are coming to another mile-stone in the history of the gas industry. Soon we shall be discussing what we have done or failed to do during the past year and what we shall try to accomplish during the year to come.

These are times of fundamental change and readjustment when many things that we used to regard as safe and substantial seem to be crumbling about us, and when new and strange structures of society are rising to take their places. Never before has there been greater need in the gas industry for vision and leadership. These we have. But, of at least equal importance is cooperation and aggressive action by the whole industry—gas companies, manufacturers and individuals—acting as a well organized unit to promote the welfare of all its members.

The gas industry today is in the thick of a grim struggle, — of an undeclared war of aggression in which it is at present the defender. We politely speak of it as competition. Yet no military campaign was ever more bitterly fought, and none ever required more leadership or coordination or unity of purpose to achieve ultimate success.

A few years ago competition most usually meant the struggle among those whose business was along the same general lines. In this respect the gas industry was, and still is, non-competitive. But a change, already taking place, was greatly hastened by the depression. Competition among the individual members of an industry seems, if anything, to have decreased; and in its place whole industries are lined up in a mass effort to capture the business of another group. Competition by substitution has always existed, but never before with anything approaching the leadership, organization or financial backing that it has today. It is this competition by substitution which the gas industry must fight, and must probably continue to fight until the end of time.

In the leading article in this issue of the *Journal* a well known man, who is not a member of the gas industry but who has had close contact with it, analyzes our situation and finds us wanting. For many years gas companies were largely non-competitive in fact as well as in name. Salesmen were then little more than order takers, and executives devoted their major attention to operating and financial problems. There was relatively little occasion for us to become sales minded, to analyze markets, to spend money in training salesmen or to let scientific sales promotion be the deciding factor in shaping company policy. It is safe to say that even now relatively few in the gas industry know what being sales minded really means. Indeed, disuse of our fighting ability seems to have made us a rather weak adversary for the time being. We are more inclined to imitate our competitors and take a defensive stand than to organize a vigorous offense and invade new fields or enemy territory.

These criticisms are just. Coming from a man of mature judgment who can view us in our true perspective, they deserve the attention of the entire industry.

The gas industry is slow and ponderous and ultra-conservative to the point of serious harm to itself; and it is suffering today from too little sales opposition in the past. But this very weakness, absence of competition and rivalry among ourselves, may well be turned into our greatest point of strength. Unity, organization and full cooperation among us may be secured with relative ease. Already we have gone far in that direction. Two things only bar the way to full success: (1) Inertia, ultra-conservatism and lack of realization of the true situation, and (2) Domination of a few combination companies by those who are primarily interested in the electric side of the business. In addition to securing unity and cooperation, however, the industry must become alert and sales minded and must discard its outworn methods of haphazard door bell pulling for modern scientific market analyses, for rate structures designed to meet competition and for sales efforts directed where information indicates maximum results can definitely be counted on.

Time has come for another convention. We have reached another mile stone. The way ahead will be far different from that over which we have come. We may expect to see fundamental changes in the selling policies and in the selling methods of most companies. Perhaps the idea staggers us a little but such changes must be made if the gas industry is to continue to prosper. You may expect to hear of the readjustments we all must make from the leaders of the industry at the coming convention.

A few perhaps are undecided on whether or not to go. There will be no exhibit of appliances and equipment, —always a great attraction. But the number of hotel reservations indicates that the industry generally regards this as a very important Convention. You should take this as a guide and be there.

It will be well also to remember that there was no exhibit at the Convention in Chicago two years ago, but it proved to be a turning point in the history of our industry. Few of us will ever forget how James F. Pollard appeared as an unscheduled speaker and brought the meeting to a high pitch of indignation by his description and exhibit of the unethical advertising of our competitors. The leaders of our industry were roused and the result is our National Advertising Campaign.

Now what are most needed are unity, cooperation, aggressiveness and willingness to adjust company policies to modern conditions and mass competition. Go to the Convention prepared to learn and to help, and in so doing you will help your company and the whole industry.

Gas Power for Generating Electricity

This outdoor gas power demonstration reveals the possibility of such advertising to increase the prospect list. A Lycoming 15 KWH "package power" unit was used. Many feet of Neon forms the subject.

By
Roy W. Parker
Oklahoma Natural Gas Company

PUBLIC acceptance of cheap "power through pipes" prompts wider use of the stationary engine and offers the gas companies an excellent chance to increase their load. The off-peak portion is particularly desired as a means of increasing the summer revenue. With this in mind and the more recent interest that engine manufacturers are taking, it seems necessary as well as profitable for gas companies to solicit and cooperate in obtaining such an attractive load.

As with industrial, commercial or domestic sales the selling of a gas engine load is accompanied by service to be rendered if the occasion arises. For this reason the salesman can save much time and expense if he knows the requirements and is familiar with the operating variables that will affect the continuity of the individual installation. Engine manufacturers have their engineers make surveys but very often the prospect wants a recommendation and will make his own purchase of used equipment. Then too, the average business man who decides to purchase a natural gas engine is not familiar with designs or limitations. Consequently he is unable to analyze the data or weigh the claims of equipment salesmen and so may become confused to the point of not considering any proposal. If an active campaign is made for this gas engine load the prospects may become too numerous for any local engine sales staff to contact without delay. Sales are often lost by delayed contacts as the prospect who makes an inquiry is open for a proposal at that time.

These points not only necessitate dealer cooperation, but often a complete and intelligent survey by some member of the gas company's sales force. A review of this data and information will then permit the industrial gas representative to offer suggestions to the prospective consumer relative to the type, size and installation features of the unit best suited for his needs.

Because of the many applications of gas power, such as for water pumping, driving compressors, powering line shafts in laundries, machine shops, etc., cotton gins, feed mills and generating current for lighting, it is evident that the gas representative should have a thorough understanding of these operations. The survey is relatively simple in established plants where a motor is to be replaced by a gas engine. An engine should be selected whose rated horsepower is somewhat in excess of the corresponding starting fuse of the motor.

When new equipment is to be installed such as compressor, machine shop lathes, etc., the manufacturer will furnish the necessary motor power information and from this a suitable gas engine can be chosen.

The recent trend in this territory where electric rates are comparatively high, is the installation of complete generating plants to furnish all energy required. This includes electric lights, neon signs and supplementary motors used in small power operations such as fans, meat grinders, refrigerators, etc. These plants vary in size from 1500 watts to 125 kw. The average plant requirement is about 20 or 25 kw. and because most of the current consumed is in the higher rate bracket, it gives the gas engine salesman an excellent opportunity to present his story.

Realizing that much of our new gas engine load will be derived from such prospects, it is with this type of load that this article deals.

The following is an outline that can be used to determine the correct electric specification and size of plant required:

I. Electric Specifications

Determine whether (A.C.) or (D.C.) current is required. Motor plates will show the kind of current necessary and rating—lights and most resistance type equipment will operate on either.

The voltage required will be found on the motor plates.

The correct phase and frequency is also shown on the motor plate.

II Size of plant required

Two factors are most important in determining the size of a plant namely: Plant should have rating slightly in excess of total connected load. However, more current will be demanded if found to be cheap, so it is well to apply some estimated over demand factor.

The plant must have power to start the largest installed motor.

Power Required for Motors

	H.P.	*Running Watts*	*Starting Watts*
Direct Current Motors	¼ H.P.	350	700 to 900
	½ H.P.	500	1,000 to 1,500
	1 H.P. or over	800 per H.P.	1,000 to 1,500 per H.P.
Alternating Current Motors (Small)	¼ H.P.	350	700 to 1,400
	½ H.P.	500	1,000 to 2,000
Single Phase (A.C.) Motors	1 H.P. or over	1,000 per H.P.	1,500 to 2,000 per H.P.
Three phase (A.C.) Motors	1 H.P. or over	1,000 per H.P.	1,200 to 1,500 per H.P.

A. Lights: Observe and tabulate voltage.

Other resistance equipment, such as, irons, stoves, griddles, electric heaters, etc., are usually rated in watts. Otherwise the voltage multiplied by ampere rating equals watts required.

Motors: The power required for motors can be approximated from the H.P. rating in table on previous page.

Maximum H.P. of motors that can be started with no load on plant. D.C. motors without starting mechanism H.P. of motor not over ¼ to 1/3 KVA rating of generator. With starting mechanism ½ to 2/3 KVA rating.

After determining the size of equipment necessary to do a particular job it is necessary that the gas salesman make an estimate of costs. The estimate can be brief but will serve to judge the prospect's interest. The following charges and cost are in line with average conditions and specifications.

Cost of Equipment Installed.

1. $75.00 to $100.00 per KW (Large installations)
2. $45.00 to $70.00 per K.W. (Small installations)

Fixed Charges

1. Interest 6%
2. Depreciation 4%
3. Taxes, insurance, 2%

Operating Costs

1. Fuel cost—4 mills per KHW (local)

(This depends on rates and load factor)

2. Maintenance, $2.00 per H.P. per year.
3. Lubrication, 2,000 KWH per gallon

Labor

1. Estimated for each job.

When a prospect considers installing his own power plant the first thing considered is operating costs. This will determine if the saving will justify the expense and pay out in a reasonable time. This requires converting kilowatt hours to cubic feet of gas. It is figured as follows: A kilowatt hour is 1.34 horsepower hours, but 10% must be added to compensate for generator loss that the engine must absorb. Therefore the H.P. required to generate a KWH is 1.34 + .134 or 1.474, usually figured at 1.5 H.P. hrs.

Tests have indicated the following gas consumption per KWH, based on 1050 Btu. heating value.

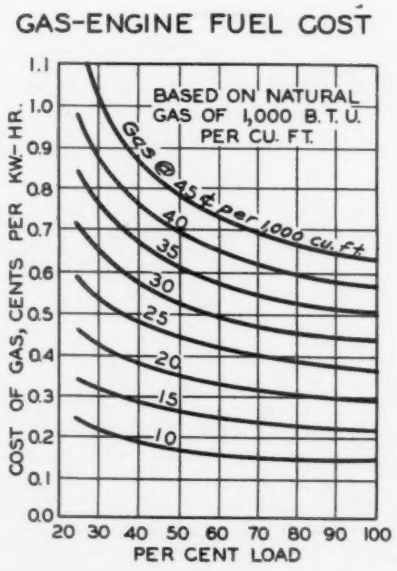
Percent of full load	*Cu. ft. of gas per KWH*
100	15
75	16
50	17
25	25

To obtain the plant load factor, take the total KWH generated, divide by the number of operating hours and divide the result by the plant capacity. This often reveals information that is essential in equipment application.

Records kept on shut-down periods for hundreds of gas engine installations have proved their reliability; so the other requirement is operating cost.

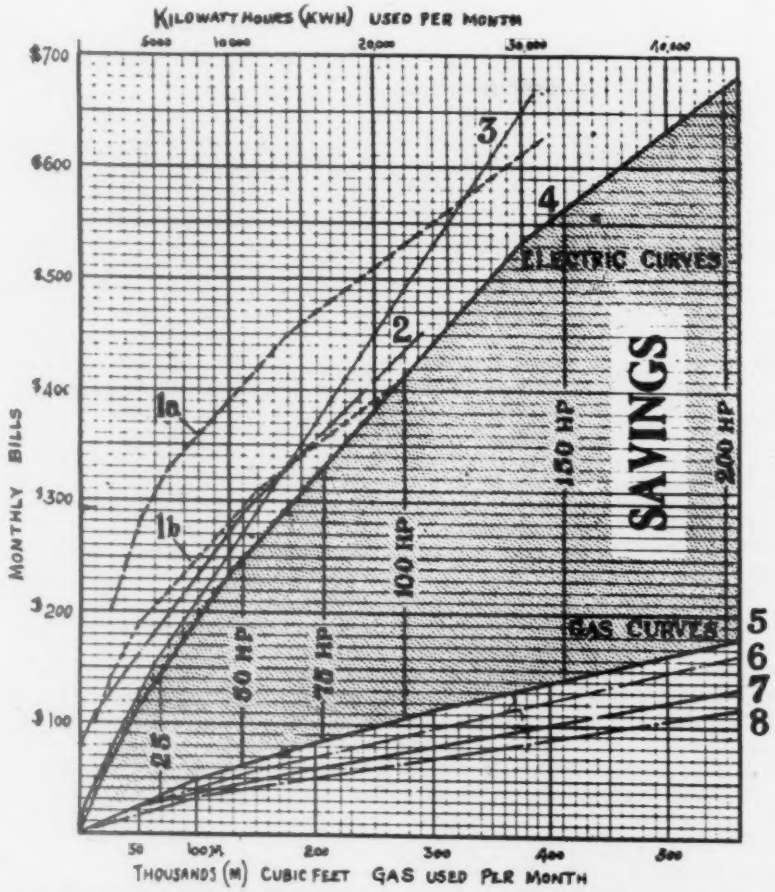
A graphic comparison[1] between gas and electric costs in terms of power used is shown on the chart adjoining.

The assumption is made that 1000 cu. ft. of 1050 Btu. gas is the power producing equivalent of 80 KWH. This takes into consideration motor efficiency, wire loss, starting box resistance, etc. Gas consumption if fiured at 11 cu. ft. per H.P.



This Chart shows graphically the cost per KWH at different load factors and gas costs.

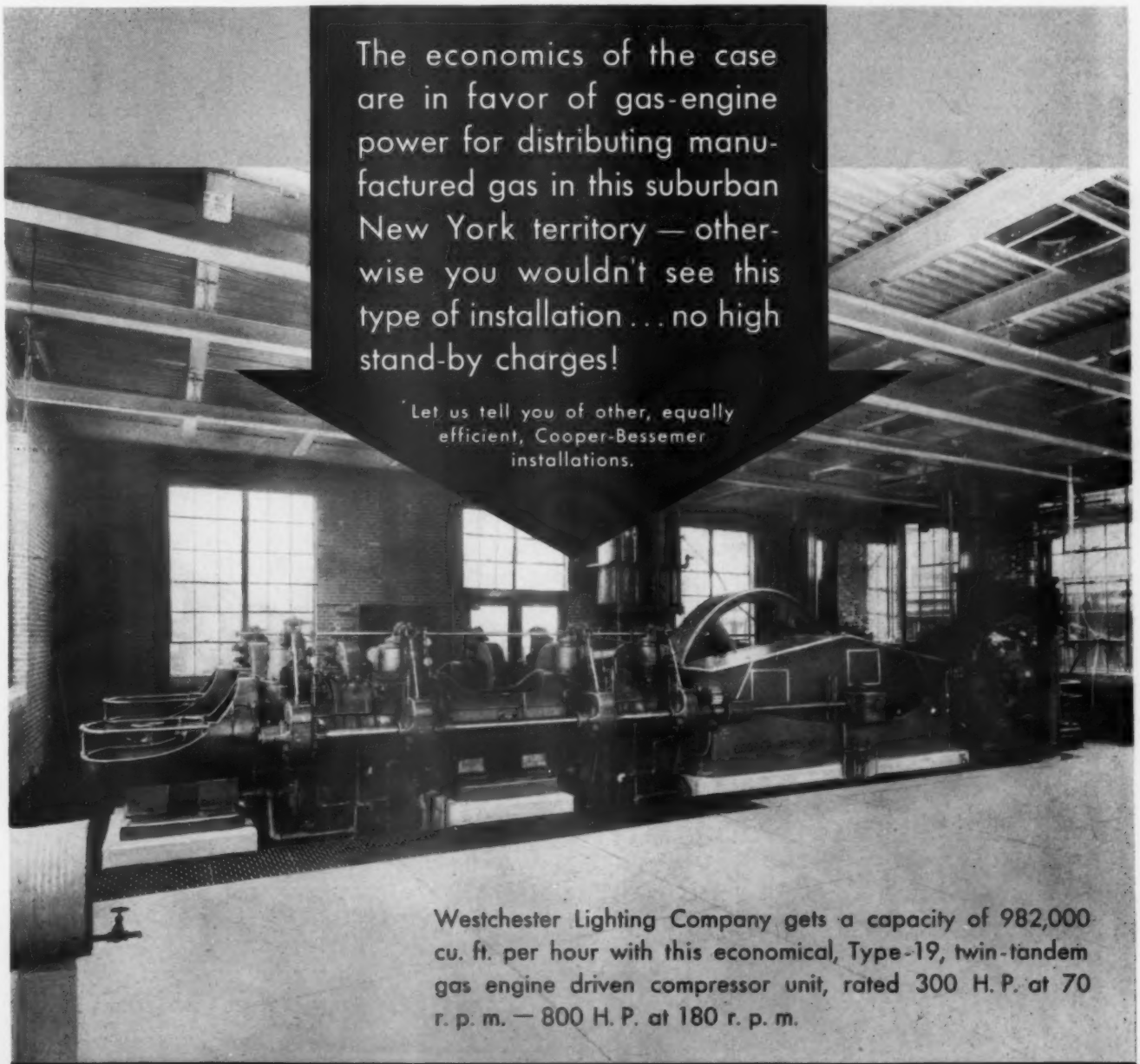
The several curves shown were figured from rate structures of representative utilities companies. Only



A graphic comparison between gas and electric rates in terms of power used and monthly bill to pay. Five representative electric curves are plotted and four gas curves. Rates structures change from time to time but some one of the curves will correspond closely enough for comparison purposes. Note how the cost differential increases as the horsepower increases.

Another EASTERN GAS COMPANY

uses its own Product for POWER!



The economics of the case are in favor of gas-engine power for distributing manufactured gas in this suburban New York territory — otherwise you wouldn't see this type of installation . . . no high stand-by charges!

Let us tell you of other, equally efficient, Cooper-Bessemer installations.

Westchester Lighting Company gets a capacity of 982,000 cu. ft. per hour with this economical, Type-19, twin-tandem gas engine driven compressor unit, rated 300 H. P. at 70 r. p. m. — 800 H. P. at 180 r. p. m.

THE COOPER-BESSEMER CORPORATION

Mt. Vernon, Ohio — PLANTS — Grove City, Pennsylvania

25 West 43rd St. New York City | Mills Building Washington, D. C. | 640 East 61st St. Los Angeles, Calif. | 201 East 1st St. Tulsa, Oklahoma | 631 Spring St. Shreveport, La. | Magnolia Bldg. Dallas, Texas | Esperson Bldg. Houston, Texas

two will be listed namely: Number (5) gas rate as follows:

First 1,000 MCF	50c
Next 1,000 MCF	35c
Next 1,000 MCF	50c
All over	25c

Testing laboratories such as this one has enabled the gas engine manufacturers to greatly improve designs, materials and operating conditions until the gas engine equipment is exceptionally economical and reliable.

Number (4) power rate as follows:

First 200 KWH	5c
500 KWH	3½c
800 KWH	3c
2,500 KWH	2½c
6,000 KWH	2c
20,000 KWH	1½c
Over 30,000 KWH	1c

$.50 per Hp. minimum monthly bill.

Knowing the average load, assumed to be 50 H.P. the motor would require per hour 50 x .88 (conversion factor) = 44 KWH.

Per 10 hr. day 10 x 44 = 440 KWH.

Per 25 da. mo. 25 x 440 = 11,000 KWH.

Tracing 11,000 KWH from upper horizontal scale vertically down to curve (4) and tracing this point horizontally to the left—we find $249.00 as the electric bill.

Gas Engine: At 50 H.P. steady load

Per. hr. 50 x 11 (cu. ft.) = 550 cu. ft.

Per day 10 x 550 = 5,500 cu. ft.

Per 25 days 25 x 5,500 = 137,500 cu. ft.

Tracing 137,500 cu. ft. from lower horizontal scale up to curve (5) and tracing this point to left, we find $63.00 as the monthly gas bill. Out of this $186.00 saving you must pay for oil, attendance, repairs, interest and depreciation. These would total approximately $50.00, leaving a saving of $136.00 per month, which would probably amortize the investment in about 18 months.

As stated before there are a number of installation and operating variables that have their effects on continuity of service which is the objective sought from a sales standpoint. Any suggestion that can be offered that might increase the life of the plant or eliminate complaints should be made.

Since the accessories required for a power plant are as important as the unit proper it might be well to review some of these.

First, the foundation should be solid enough to eliminate vibration. If constructed of steel it should be heavy—when concrete is used the depth should be adequate.

Several excellent gas mixers are available and it is poor economy to experiment with home made carburetors. The Venturi type with no moving parts and the minimum of adjustments seem preferable.

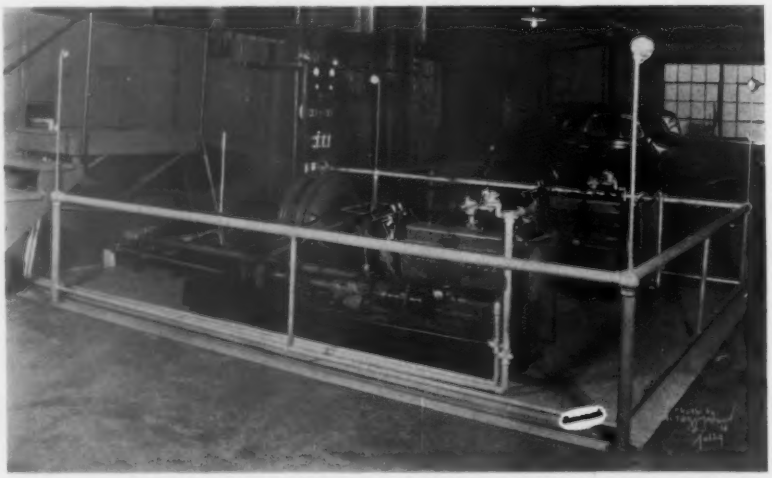
The average small engine is provided with a radiator for cooling. It should be of sufficient size to maintain a normal temperature. Thermometers should be installed on the inlet and outlet engine water systems as this differential should be kept at a minimum. Cooling towers are often necessary but nevertheless this is an important operating item.

Gas engines lend themselves particularly to automatic control and operation. Electric means are available to shut down a plant in case of over heating, low oil pressure, excessive exhaust temperature, over heated bearings or mechanical damage to any part. Governors can be applied to maintain constant frequencies over a wide load fluctuation.

Battery starting and ignition is accepted practice with smaller units.

A good grade of oil should be used for lubrication. Filters and oil refiners are desirable, especially the removable filtering medium type. No oil dilution will be experienced and practically no carbon when using natural gas but one of the products of combustion, water vapor, might sludge or emulsify the crankcase oil. Natural gas being dry it is good practice to employ a top oiler to moisten the gas. The rate of oil flow can be regulated according to the dryness of the gas.

Voltage regulators are rather expensive but are necessary for satisfactory operation especially if motors are connected. To install them with the original plant will save time and trouble.



This dual gas engine plant is a typical installation of the individual power plant. It has been in continuous operation for the past two years, and generates current for 8 mills per KWH. Test results indicated 15.6 cu. ft. per KWH, and 314 KWH per gallon oil. The engines have equivalent mileages of about 250,000 miles with no major repairs. Not being able to anticipate the behavior of these engines under such running conditions they were arbitrarily shut down at 113,000 miles. The mechanical clearances had increased so slightly that only gaskets, oil, etc., were replaced.

Engine failures are often traced to inadequate reserve volume of gas. Sufficient header capacity should be provided during the piping of the fuel line.

Exhaust gases are often a problem, both from the standpoint of noise and odor. Original installation plans should include provisions to eliminate or lessen this objectional feature. Improved mufflers and silencers are

(Continued on page 108)

CLEAN GAS MAKES SATISFIED CUSTOMERS

Expansion of your gas business depends upon how well your gas serves in the modern appliances, controls and meters with their delicate, easily-clogged mechanisms. You know that right around the corner competition is waiting for one sign of dissatisfaction from your customers. You know also that "home-made" gas cleaners will not meet modern requirements. They are often the source of complaints and high service costs. Make gas more popular . . . insure a *continuous* delivery of CLEAN gas and a minimum of service trouble with Blaw-Knox Gas Cleaners. They are preferred by leading operating engineers everywhere.

BLAW-KNOX
COMPANY

2033 Farmers Bank Building, Pittsburgh, Pa.

Customer Inquiries Handled with Speed by Three-Way Telephone System

A SHORT cut to efficiency in answering customer inquiries has been achieved through the installation of a unique "three-way telephone system" in St. Louis by The Laclede Gas Light Company of that city. Customers have been saved more than 8,000 hours of time—the equivalent of 333 days—during the period it has been in operation, according to an estimate made following a comparative analysis of telephone calls at the present time and prior to the installation.

One of the few telephone installations of its kind in the United States, it is the only one in operation in the Southwest. After several months' observation of the performance of the new equipment, which was designed and installed by the Southwestern Bell Telephone Company, B. F. Pickard, vice-president of The Laclede Gas Light Company, has declared that the system is highly satisfactory.

"Service calls of a divergent nature are received by the company at the rate of 1,000 a day," said Mr. Pickard, "and before installation of the three-way system it was sometimes necessary to hold a call waiting for as long as eight minutes. Since installation of the new system, however, the maximum waiting time for a customer is 30 seconds.

"The experiment has proved that the new system saves the customer an average of two minutes on every service call, or a total of approximately 8,000 hours during the 250 working days of the year. The more rapid handling of calls has facilitated the handling of customer requests and has, therefore, resulted in considerable improvement in service.

"For some time prior to June 15, 1936, The Laclede Gas Light Company realized that its method of handling telephone contacts with its customers was not entirely satisfactory. Under the system then in use, it was necessary for a customer transacting business with the company by telephone to contact a switchboard operator, who, in turn, endeavored to route the call to the proper department. This might have been one of several departments. In some instances, due to a misunderstanding on the part of the operator, the customer's call was routed to the wrong department thereby necessitating a transfer. In other cases, it might have been necessary to contact one or more departments which required still another transfer. This manner of handling calls resulted in considerable delay and annoyance to the customer because he had to tell his story several times.

"A study of the entire situation was made and it was decided that the most efficient manner of handling customer telephone contacts would be the installation of a central order table where all service calls, complaints, bill information, etc., would be received direct. In this manner, the first person contacted would handle the call to a satisfactory conclusion.

"The Southwestern Bell Telephone Company designed special telephone equipment which was installed in a new central service building, 3950 Forest Park avenue. With this equipment it is now possible to carry on a three-way conversation between the operator, the customer, and the department which it is necessary to reach in order to complete the transaction.

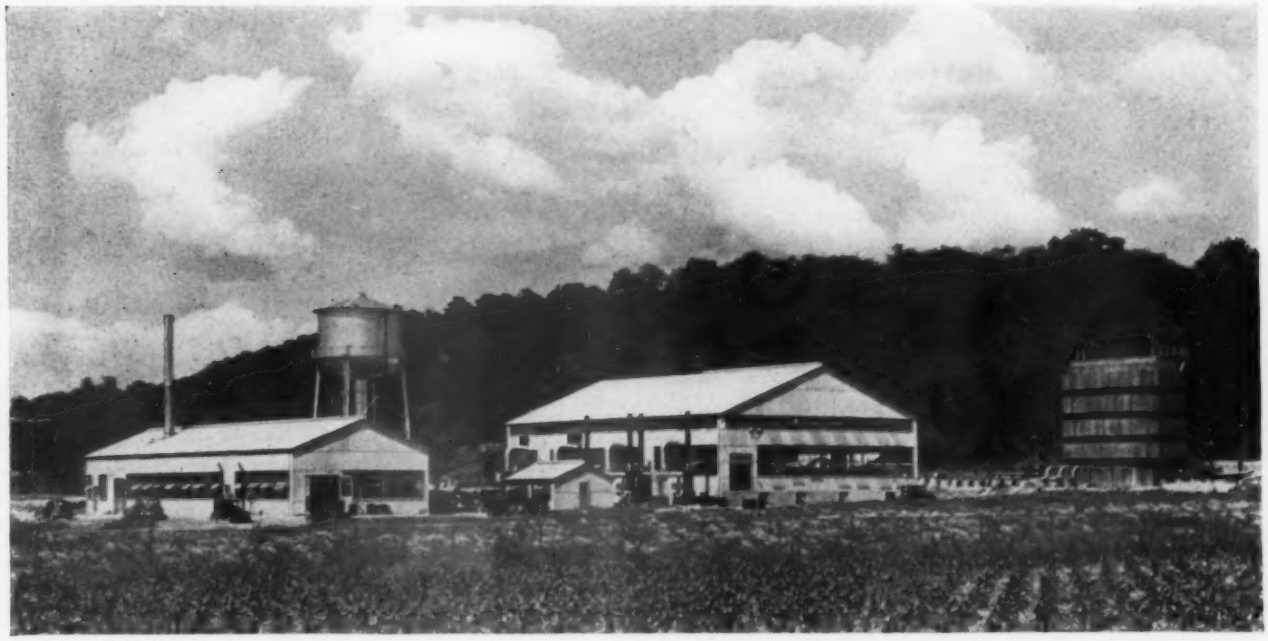
"This order table is reached by a special number, and has twenty-four trunk lines. By using this number, the customers' service requirements such as requests to have gas or electricity turned on or off, adjustment of appliances, leak complaints, explanation of items appearing on gas bills, as well as matters pertaining to collection of their bills, are all received at this table. The operators have been especially selected and trained to qualify them to handle all such calls received from customers."

In this connection, it might be pointed out that weekly instruction meetings are held for the 40 service operators. Problems encountered in actual practice are brought up for consideration, and the telephone supervisor has found this method of instruction most effective and beneficial. Incidentally, The Laclede Gas Light Company conducts a monthly meeting for the benefit of employes who communicate with each other by telephone in intra-office business, but who otherwise never come into personal contact. Company officials believe it is helpful for employes having business dealings with one another to know each other personally.

"The supervisor of the telephone division has in his office an observation board which enables him to sit at his desk and listen to telephone conversations," Mr. Pickard continued. "Through this means any mistake the operators make can be checked and special coaching provided. It also enables the supervisor to become thoroughly acquainted with the many different calls and requests made by customers. It shows what operators are idle in slack times and how many calls are waiting during busy periods. The equipment has a storing circuit in which all incoming calls that cannot be immediately answered are stored and held for an idle operator. They pass out of this storing circuit in the same order in which received—which means that the call waiting the longest will flow automatically to the first idle operator. Through the control afforded by this equipment, the supervisor can always maintain an adequate force on the order table and see that all calls are answered promptly. Likewise, it enables him to reduce the number of operators periodically when calls are few and transfer them to other duties. It is through this medium that ample force is diverted from the order table to file all of our work tickets during idle time.

"Another unique feature of the equipment installed by the Telephone Company is the metering devices by which we obtain the total number of calls handled daily by each operator. There are also special meters which show the number of calls which went into storage and were held for a specified length of time before being released to an idle operator. These meters are read every thirty minutes each day during the time operators are on duty. Through this source the supervisor is afforded additional information for control purposes."

The new telephone system at The Laclede Company illustrates the new emphasis upon customer service which is rapidly coming to the fore at that concern. The importance lent to the new telephone service is illustrated by the fact that it was responsible for the erection of a new building at a cost of $140,000, completed a year ago. It is 180 feet long, 60 feet deep, and has a wing for storage purposes which measures 120 by 80 feet, connecting the main building on the west.



Compressor Station, recently constructed at Montezuma, Indiana

MEETING THE GAS NEEDS OF A HIGHLY DIVERSIFIED MARKET

THE service territory of Columbia System is a populous area comprising adjacent sections of Ohio, Indiana, Kentucky, West Virginia, Virginia, Maryland, Pennsylvania and New York. To that large market gas is made readily available for the varied requirements of industry as well as commercial and residential purposes. Continuing demand for this dependable and economical fuel tends greatly to widen the scope of its usefulness.

At the end of 1936, operating companies of the System were serving directly, through more than 30,000 miles of gas pipe lines, 1,081,234 gas customers in 1,367 communities with a total population exceeding 5,000,000. During the year, gas sales amounted to 134,371,800 mcf. Normal business expansion, growth in population, ever widening use of time and labor saving gas appliances . . . . factors in recovery already apparent . . . . should increase this volume.

COLUMBIA SYSTEM

COLUMBIA GAS & ELECTRIC CORPORATION

Laclede Gas Light Company Enlists Plumbers Cooperation

THE Laclede Gas Light Company through its recently reorganized new business department headed by George H. Schlatter is putting into effect a sales program that reaches even beyond the direct selling crews of the company.

A plan recently unfolded at a meeting of the licensed and registered plumbers of the city at Hotel Statler, presided over by Edward Monteith, a director of the Master Plumbers of America, provides for liberal bonuses and commissions to all plumbers of the city who will join The Laclede in a cooperative sales activity. The Laclede will handle all paper and carry the account for all merchandise sold on its contract.

Not content to rest its program of plumber cooperation on bonuses and commission alone the company will back up the offer with sales, advertising and display helps. At any time a plumber so desires he may call on Laclede for help in making a sale and an experienced appliance salesman from The Laclede force will be sent to his assistance without penalty. In addition to the above, any plumber can purchase appliances from The Laclede for display purposes at a special discount and will be supplied with the necessary posters, banners, and material for a complete display set-up. If the plumber is able to sell, or is responsible for selling, on the company's contract, four appliances within a period of 120 days, the company will refund the amount of the appliance. However, the plumber must agree to keep the appliance on display and can receive only one on this basis during any fiscal year. Also for each unit he sells, as in the case of a water heater, he will receive one connection order for another unit sold by the company. This means that in addition to his commissions on the four units he sells, and the additional connection orders, he will receive a unit free. Also display units may be purchased on low monthly payments without financing charge. However, it will not be necessary for the plumber to purchase equipment from the company, in order to take advantage of the plan. He may continue to buy from his jobber, manufacturer or distributor at established discounts and use The Laclede Gas Light Company's finance plan. Prices on equipment accepted and financed by the company must be standardized.

Prospects turned in by the plumbers are reported on business reply cards supplied by the company. All appliances are listed on the reverse side with a place for a check mark to indicate the type of appliance the prospect may want. If the plumber does not want to be identified with the sale, the company will not use his name, if he so indicates on the card in the space set aside for this purpose. Immediately upon receipt of the prospect card, the company notifies the plumber on a special form, thanking him for the prospect. If the sale is completed within 90 days, he is notified of the sale and the date the installation is to be made. His commission will be paid ten days after installation date. If the prospect has been previously reported, this fact is reported on another form; and if the sale is made by another dealer in the meantime, this fact is also reported on a separate form. If the company is unable to complete the sale in the specified time, the plumber is so notified and it is suggested that he again contact the prospect and renew his prospect card for another ninety days protection. All these forms are printed on different colored stock in order to simplify filing and to avoid confusion.

Each plumber has been supplied with a kit containing a portfolio of some seventy pages showing retail prices and classification of all merchandise handled that falls within the scope of the plan; terms, discount scales, examples of written orders for all appliances, and examples showing how to use the discount chart and how to apply terms to various appliances. The sales department of The Laclede spent considerable time and effort in preparing these various kits in order to make the necessary steps in reporting a sale as easy as possible for the dealer who might not be familiar with sales records and practices.

The cooperative dealer dinner was attended by J. B. Wilson, new president, and B. F. Pickard, vice-president and general manager of The Laclede. Both made short talks. The meeting was attended by 143 registered and licensed plumbers out of a total of 302 in the city. Mr. Monteith was highly enthusiastic and urged all plumbers to take advantage of this opportunity to add sales to their regular business. He predicted that greater profits would accrue to all as a result of the meeting and the cooperative plan.

They had reached the coffee stage when this flash was taken at the cooperative dealer dinner attended by 143 registered and licensed plumbers and endorsed by The Laclede Co. The sales plan unfolded had strong appeal for all those present. The meeting was presided over by Edward Monteith, a director of the Master Plumbers of America and was promoted by George H. Schlatter of The Laclede Co.

Several conferences following the meeting between the plumbers and the Laclede representatives lasted until midnight, which Mr. Schlatter took as an indication that full cooperation would be forthcoming. This prediction was substantiated when the sales organization received twenty-five prospects before noon of the following day.

Air Conditioning

By Erick Larson

Erick Larson

THE term "Air Conditioning" has captivated popular fancy. A cordial welcome awaits the industry with sufficient foresight to satisfy the aroused curiosity. Such a favorable entree to prospects is a salesman's dream. A salesman's enthusiasm, so essential to convert prospects to customers, requires no stimulus when presenting air conditioning equipment because of its inherent variety of merits all in a single unit.

Purpose

The fundamental purpose of air conditioning is to provide conveniently and safely an atmosphere which is comfortable, healthy and clean, through apparatus which is modern, reliable, fully automatic, quiet and economical. Persons who have experienced the invigorating effects of an air-conditioned atmosphere desire its many advantages. Those who have not had that fortunate experience will be more than interested when informed that the purpose of air conditioning is to provide them with nature's balmiest weather every day.

Scientists, experimental engineers, manufacturers and pioneer users have co-operated in producing apparatus which has progressed beyond the development stage. Gas apparatus has set the goal for heating and humidifying, and also incorporates cold weather air cleaning and circulation. Cold weather gas air conditioning apparatus may also be arranged to de-humidify and cool in warm weather with moderate investment and modification, thus becoming a year around comfort producer. At present, only the gas industry can provide all of these features in one package. However, we must not overlook the fact that the laboratories of competitive industries are working intensively on the problem and have apparatus in the development stages which may eventually duplicate present abilities of gas equipment.

Limitations

There are no limitations to the accomplishments possible with gas for heating, humidifying and dehumidifying. Apparatus has been perfected for cooling air with steam jets and vacuum or water; but in the smaller sized unit, electrically driven refrigerating compressors are generally used.

The average domestic automatic refrigerating unit has an equivalent capacity of approximately 1/20 of a ton of ice in twenty-four hours. Cooling requirements for the ordinary seven-room house will vary from three to five tons of equivalent ice capacity. This large capacity explains the present lack of gas refrigerating equipment for air cooling.

For large commercial and industrial units, an electric generator, gas-engine driven, is and will continue to be a competitor of the electric utility, especially in natural gas territories.

No single method or type of summer air conditioning is universally adaptable and even in a restricted territory, local condition pertaining to water, gas and electric supply must be studied in detail before standardization of equipment or methods is possible. However, even under the most difficult operating conditions, the utility engineering staff can easily select standard equipment so that air conditioning will find satisfactory acceptance.

There are no mechanical limitations to the applicability of air conditioning equipment. However, to maintain the popular appeal, use of the term should be limited to apparatus which provides year-round or complete conditioning.

Comfort

A major appeal for air conditioning originates in the universal desire for comfort. Health may be an equally important consideration, but successful sales efforts have demonstrated the value of emphasizing comfort.

What makes us comfortable? Eminent medical scientists have conducted extensive research to determine the essentials of comfort. Their investigations are not only worthy of detailed study but are intensely interesting. It is sufficient to state that in the development of present day air conditioning apparatus, the scientifically established factors producing comfort have been incorporated, avoiding the usual slow trial and error method of ascertaining customers' desires.

The body is a marvelous heat machine and may be pleased rather simply. Recognition of the facts and the simplicity with which they may be accomplished are of vital importance. Gas is the outstanding servant.

The following is one of the many available illustrations indicating the reason for success of gas air conditioning apparatus:

Dr. Howard W. Hazzard, Professor of Applied Physiology of Yale, determined the following body heat losses:

Heat lost by water and food ingestion 1.8%.

Heat lost by expired air, 10.7%.

Heat lost by evaporation from the skin 14.5%.

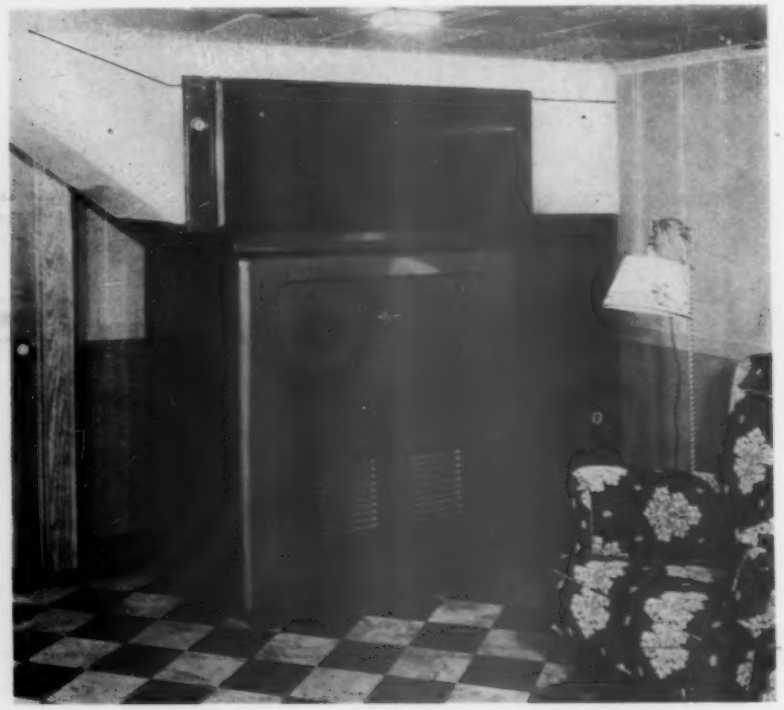
Heat lost by radiation and conduction from the skin 73.0%.

This table indicates that evaporation and cooling by the atmosphere has far greater effect than the drinking of cooling liquids (water or otherwise) in the production of the sensation of comfort. Excessive drinking requires more energy for ingestion than is used to raise the liquid temperature, thus producing an initial cooling sensation but an average feeling of higher bodily temperatures.

Gas apparatus has a distinct advantage over all existing types in

its control of humidity, and too, humidity is the most important factor in producing a sensation of comfort. A few degrees of cooling below the outdoor temperature is all that is necessary even on the warmest days of the year providing the humidity is maintained between certain limits. The original practice of cooling buildings to the degree where chilling occurred is being repeated in many small commercial establishments today, merely because our competitors are selling what they have available.

An interesting problem encountered in summer air conditioning is overcoming the prejudices against closed windows. Economical and effective operation of summer air conditioning equipment requires merely sufficient air infiltration to maintain the proper oxygen content for occupants of the space. Circulation of air alone can often produce a desirable sensation of comfort without de-humidifying or cooling. Economy is secured by circulating the cooler air, whether interior or exterior.



This Complete Heating and Air Conditioning Unit installed in basement of home (2 F.E.6 Model of American Gas Products Co.) operates on counterflow principle. Input 150,000 B.T.U., 72" high, occupies floor space 47 x 35.

The controls on summer air conditioning apparatus have a particular appeal to customers. There are no thermometers or hygrometers to influence feelings. The settings are adjusted entirely to the degree of comfort desired by the individual. Peculiarly, setting controls from personal feelings usually produces more economical operation than when a thermometer or hygrometer is consulted. Atmospheric temperature is not a criterion of comfort.

Health

The public is becoming more and more health-conscious. Individuals who recognize the value of protective health measurers are strongly attracted by air conditioning. During cold weather we live in buildings where the atmosphere is drier than the driest desert. Dr. Herman N. Bundesen, Commissioner of Health of Chicago, stated that "Dry hot air dries out the protective secretion of the delicate linings of the air passages and permits the germs to do their dirty work. Colds, coughs, bronchitis, 'flu' and pneumonia are winter diseases. Living indoors in still heat and dry air decreases our resistance to these diseases."

Dr. Ellsworth Huntington, climatologist at Yale University, adds to this thought in a statement "Air moisture is just about as important to our health as air temperature... We are filling our hospitals by keeping our homes too dry."

That tickle in the throat is frequently the evidence of an overworked organ which requires conditioned air rather than the temporary relief of liquid refreshments.

Dust and foreign matter in the atmosphere cause such ailments as colds, rhinitis, hay fever, pollen asthma and other nasal passage ailments. All modern air conditioning devices have dust scrubbing apparatus as standard equipment. This equipment, so important to health, is one of the least expensive phases of air conditioning to install and operate.

In the initial stage of air conditioning, cooling was considered the primary requisite as evidenced by the many establishments which advertised "Fifteen to Twenty degrees cooler inside." S. Proctor Rogers of Baltimore, in an article "Air Conditioning" in the August, 1931 issue of the AMERICAN GAS JOURNAL summarized a review of the medical profession's literature on health investigations by stating that a drop in temperature of more than fifteen degrees causes an unhealthy shock to the human body.

The consensus of opinion among occupants of large southern offices was that they experienced the most comfort when experimental records indicated proper control of humidity but the room air was cooled only three to five degrees below the outside temperature, which was above 90 deg. F. These conditions do not subject the body to shock on emerging from the conditioned atmosphere. The most effective de-humidification apparatus uses gas.

The atmospheres which are best for health are also best for a structure and its contents. Air conditioning prevents the mildewing of equipment and food by the high humidity of summer and also prevents the drying out of structure, wall paper, furniture, food, etc. by the particularly arid atmospheric conditions in cold weather.

Convenience

Summer or winter, move a single control and gas equipment provides the desired degree of comfort. Attendance on modern air-conditioning equipment has been reduced to writing a reasonable monthly check. Characteristic gas service can be provided on complete air conditioning apparatus with practically no extra operating expense to the utilities. The nature of air conditioning allows its inclusion in the technical division of house heating with but minor changes.

Modernization

The recently coined phrase "air conditioning" signifies "modern" to the public. The unsolicited publicity rendered modern air conditioning by newspapers, periodicals, and Fed-

NEW — Styled in the Modern Mode

MONCRIEF

Gas WINTER AIR CONDITIONERS

● New beauty, new features, new efficiency and greater economy of operation are presented by these modern air conditioners. The cabinets are the most advanced in style that industrial designers have yet turned out.

In thousands of homes, Moncrief Gas Winter Air Conditioners for many years have been making gas more practical for fuel because of their exceptional economy of operation. They are fully automatic in operation. Simply light the gas and thereafter they function under all varying conditions without care or attention.

Specially designed heating sections develop extraordinary efficiency with their extra long fire travel and high ratio of radiating surface with relation to gas input. With all their beauty of finish and advanced construction features, Moncrief Gas Winter Air Conditioners are moderately priced. Made in seven sizes, from 80,000 to 480,000 B.t.u. input.

Send for New
Descriptive Literature

THE HENRY FURNACE & FOUNDRY C

eral publications is invaluable. Sunday newspapers are featuring air conditioning in the real estate sections and numerous articles appear in daily papers. Articles on the subject are appearing in increasing numbers in all types of periodicals. The dissemination of air conditioning information has not been confined to those periodicals primarily catering to architects, builders, home owners and renters. The Saturday Evening Post and similar magazines have included articles on the subject. Such publicity can not be purchased but can be capitalized.

Safety

Safety has been a primary factor in the development of air conditioning apparatus. Air conditioning equipment equals or exceeds in safety any other type of apparatus in general use in homes, commercial establishments or industry.

Reliability

Air conditioning equipment has passed the promotional stage and is as reliable in its functioning as any complicated piece of apparatus can be made through engineering skill and operating experience. Periodic inspection, similar to that rendered on gas house heating equipment instills in a customer a sense of security because both service and apparatus are reliable.

Fully Automatic

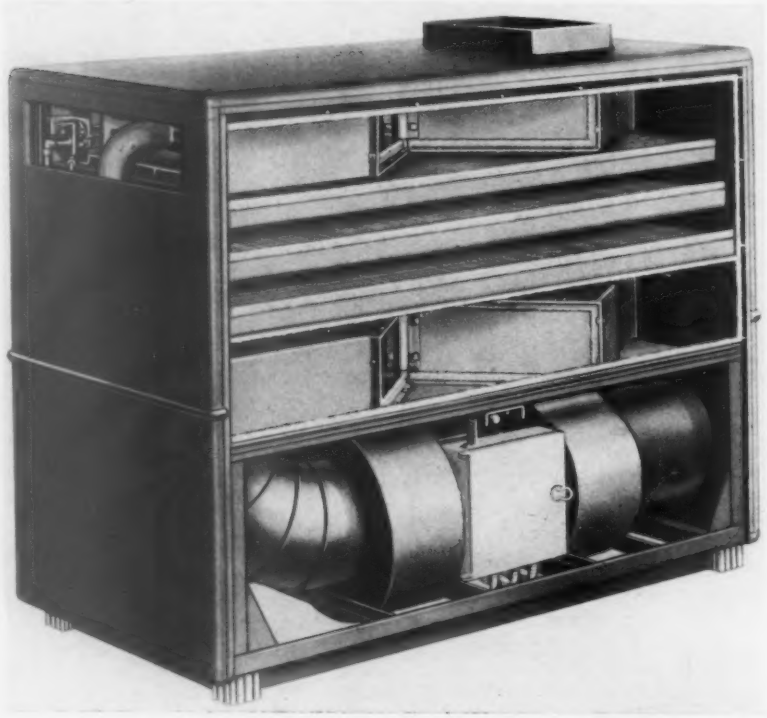
Air conditioning equipment should be installed so that its operation is fully automatic. Manual adjustment of a single control is simplicity in itself, and requires no knowledge of the technicalities involved. The customer is interested in results not mechanisms. There is a fascination to such a simple control of an unseen mechanism.

Quiet Operation

Complete air conditioning is as quiet in operation as any house heating unit of the warm air type. Circulation is produced by blowers which have been developed to the point where their operation is not detectable in the occupied living quarters.

Market

Gas house heating is now a merchandising proposition, but other phases of air conditioning continue to feature engineering. This attitude is the result of each company's repeating the experience of others rather than starting at the point to which others have advanced. The hesitancy of our industry to merchandise air conditioning equipment actively comes more from a lack of individual experience than from the experience of the air conditioning industry.



This Bryant No. 6 Silica Gel Dehumidifier with part of caseing removed has a capacity of 600 C.F.M. It is suitable size for average house of 20,000 C.F. In the middle are the gel beds and automatic damper. Below these are the air fans and control panel. Part of the gas burning equipment is seen where panel in upper left hand corner is removed.

Air conditioning has been used for a considerable period in particular industrial concerns and has yielded operating experience. There is a large field in industry where sales resistance is low and where industrial engineers recognize the value of air conditioning.

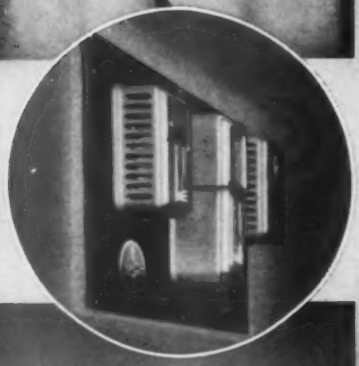
The most rapidly developing field is in commercial establishments. Competition in various trades such as restaurants, confectionery establishments, furriers, small and large department stores, etc., requires the installation of equipment to produce a comfortable atmosphere. The domestic field is virgin territory with remarkable possibilities. Reasonably priced equipment is being marketed for installation in residences. The largest potential market exists in residences and is not confined to new homes. The partial or complete air conditioning of dwellings now having house heating equipment is possible. A mass market exists in the conditioning of the lower floors of residences where the necessary duct work will be a minimum.

The extent to which the value of air conditioning has been recognized is indicated by installations in the International Building and the Palazzo d'Italia of the Rockefeller Centre Group in New York City. Three refrigerating machines, totaling 300 tons equivalent daily ice capacity, were installed for cooling water which is circulated at approximately 40 deg. F. into every office. Tenants are authorized to connect a cooling unit consisting of a radiator and circulating fan at a specified rental basis. This form of air cooling has all the disadvantages connected with controlling temperature only but is indicative of the trend.

A feature to be considered in initiating sales of complete air conditioning equipment is the ease with which each step may be added. Heating is the first requirement. If the initial installation was of the warm air type, addition of humidification or de-humidification is a simple step. Cleaning and circulating equipment is easily added as manufacturers have standardized each item. Cooling only requires the addition of another package. As each feature is added, sales resistance materially decreases on the others.

Detailed study of the potential air conditioning market has been made by such agencies as the Federal Government, Heating and Ventilating Associations, periodicals, etc. No question remains that the new and replacement market for each phase

As Modern as It's Controls



OFFICE OF DR. LEO M. SHANLEY, CLAYTON, MISSOURI . . . YEAR ROUND AIR CONDITIONING COMPLETELY CONTROLLED BY MINNEAPOLIS-HONEYWELL

MODERN heating and air conditioning demands modern controls. The Minneapolis-Honeywell system controlling the gas fired heating plant and year round Air Conditioning system in the office of Dr. Leo M. Shanley is as modern as the building itself. Whether you sell and install year round air conditioning or merely gas heating, there is a Minneapolis-Honeywell system to exactly meet your requirements—a system that will assure users the greatest possible satisfaction with gas heat . . . Minneapolis-Honeywell Regulator Co., 408 East 28th St., Minneapolis, Minn. Branch and distributing offices in all principal cities.

Dependable controls cost less than service

AUTOMATIC CONTROLS MH

MINNEAPOLIS HONEYWELL

BROWN INDUSTRIAL INSTRUMENTS · NATIONAL PNEUMATIC CONTROLS CONTROL SYSTEMS

of air conditioning equipment is one of the major possibilities for merchandising. The initial, and one of the most vital steps for gas utilities in securing this market, is that of gaining the complete confidence of management in the desirability and value of the potential load. A particularly desirable quality of air conditioning is a lack of territorial limitation as it is equally applicable to urban or suburban conditions. The adaptability of the apparatus creates a wide potential field.

Initial sales efforts are desirably confined to the locations where resistance to sales will be the least. In the commercial field, restaurants, beauty parlors, department stores, confectioners, automatic telephone stations, all offer possibilities of quick sales. In the domestic field, no location offers greater attractiveness to the salesman than the doctor's office. The doctor should realize the health appeal and the value of comfort to his patients.

Many other similar types of potential customers might be mentioned in detail but air conditioning is so universally desired that a salesman should always have more than sufficient prospects.

Gas Load

Five to seven years ago, there was much discussion among engineers on the economy of various types of gas loads. Any industry supplying a broad fuel market in competition with others, can not be selective in acquiring load. The more numerous the types of utilization equipment connected to gas systems, the better the diversity factor will be. The present restriction of the gas industry to a few basic uses has resulted in its present rather low demand diversity factor. More consideration should be given to the advantage the gas industry has for supplying and delivering its product compared with other purveyors of fuel.

Complete air conditioning has the advantage of year around use which should tend to improve the annual load factor. Most modern gas dehydration equipment for six to eight room residences and small commercial establishments or equivalent, is of the intermittent type, operating approximately twenty minutes out of each hour of full load operation. The demand is 8 cu. ft. of 530 BTU gas per minute. The total hourly demand would be 160 cu. ft. and in a season of 500 hours, approximately 80,000 cu. ft. of gas would be consumed. The summer operating time in northern territories is usually from 500 to 600 hours while in the far south it may be 1000 hours.

Investment

The investment required for complete air conditioning equipment is moving rapidly downward, particularly for centralized units. The absence of price stability in all types indicates the comparative newness of the industry. Decreases may be expected but will depend upon the volume of sales. The volume in turn will necessitate activity by the industry desiring the particular load.

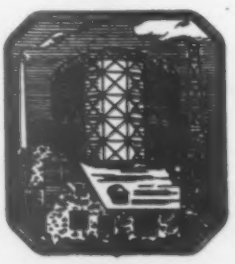
It is impossible to give an average investment for commercial establishments because of the variation in requirements. In dwellings, however, complete air conditioning equipment sufficient for the average seven to eight room house may be installed at from $600 to $1000, with an average of approximately $800. One large manufacturer of equipment has set a goal of $600 investment for the average home, which will include not only complete air conditioning equipment but also the duct work.

Merchandising

There is nothing radically different in the selling of complete air conditioning than in the merchandising of one of its phases, house heating. Methods successful in one can be adapted to the other. Air conditioning merchandising fits admirably and logically into the house heating sales divisions and servicing departments. The personnal of a house heating department could acquire the knowledge necessary to sell the additional phases much more rapidly than it is possible to train new men for strictly house heating.

Gas Engines

Electric generators having gas as their motive power have received much publicity in their application to air conditioning. Gas fueled engines can be made more economical by combining hot water needs with power generation. A considerable supply of hot water at temperatures up to 200 deg. F. may be secured from the cooling system of the gas-fueled engine and refrigerator compressor. An advantage of the link between water and air conditioning would be the permanence of both. Any desire to change one would be counteracted by the necessity to change the two appliances. It is claimed that with simple methods 80% of the jacket water heat or approximately 35% of the gas BTU input is recoverable as hot water. As high as 50% of the engine input could be recovered as waste heat if the costly equipment is justified. With the use of gas engines, gas, water and lubricating oil are the only requirements.



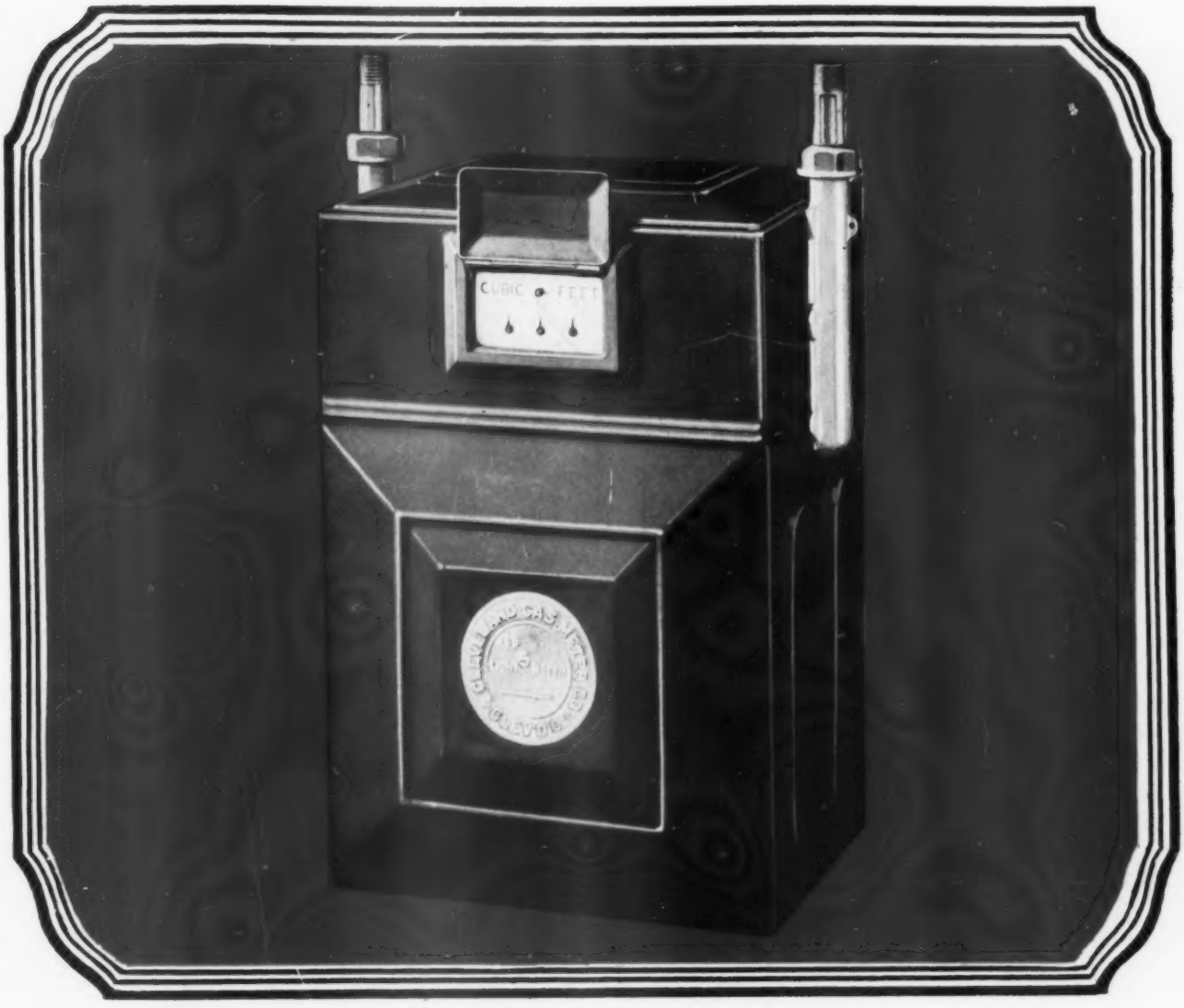
Operating Costs

The prediction of operating costs is more difficult for complete air conditioning than for heating alone. An important factor is the variation in feelings of personal comfort. Warm weather dehumidification with gas in the northern part of the United States has been found in many instances to cost approximately one-sixth that of heating the same space in cold weather. The total costs during warm weather in other instances have varied from 15 to 30 cents per operating hour for dwellings six to eight rooms in size. The higher figures usually occur on manufactured gas systems while the lower are apt to be found where natural gas is available.

Experiences at various locations in the New England States indicate that the total operating cost of commercial installations for the summer period is approximately 40% of the annual total for all phases of air conditioning, including fan operation. Residential installation statistics indicate that the summer cost is only 20% of the total yearly air conditioning costs.

The New England experience also indicates that the average cost for combination gas and electric units during the warm weather was 17 cents compared with 24 cents per hour of operation for all electric.

The operating costs have been purposely placed last in this article as it is felt that such costs are usually exaggerated in importance. A salesman who allows his own personal opinions as to operating costs to influence him against the many other advantages which the prospective customer values will make few sales. The statement bears repetition that air conditioning possesses so many advantages that somewhere will be found the one most appealing to each particular customer and the salesman should confine his efforts to seeking that particular advantage. Air conditioning is a field which the gas industry should invade with confidence and determination and should abandon the policy of watchful waiting.



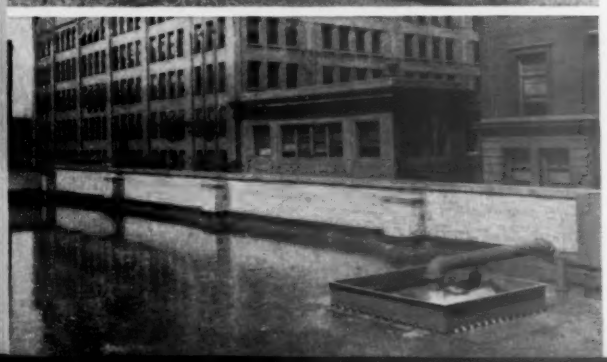
DEPENDABLE SERVICE *for 42 years to both the Manufactured and Natural Gas Industries*

During this time the Cleveland Meter has won a high place in the estimation of both Natural and Manufactured Gas Company Executives. ★ *Its reputation for accuracy, economy, and dependability has become our most highly valued asset.*

THE CLEVELAND GAS METER COMPANY

2168-2180 East 65th Street — Cleveland, Ohio

WESTERN OIL FOGGERS
A change-over from manufactured to natural gas generally brings a big increase in "unaccounted for" gas, steps up the service and maintenance on meters and appliances. Natural gas is a powerful drying agent, and soon absorbs all moisture in the mains, also the drip oil from the joint packings, meter leathers, etc., resulting in dust troubles and joint leakages. These troubles are economically eliminated with Western Oil Foggers, and can be avoided if Foggers are installed prior to the change-over. These devices introduce a fine mist or fog into the gas, providing adequate lubrication. Both mounting (Type AH and Type T&M) and gas heated (Type GH) types are available. Cost for treatment is only a few hundredths of a cent per thousand feet of gas. For full details write Koppers Company, Western Gas Division, Fort Wayne, Indiana.
KOPPERS COMPANY
WESTERN GAS DIVISION
FORT WAYNE, IND.
Mechanical Fogger, Type T&M
KOPPERS



KOPPERS ROOFS POINT SOLUTION OF AIR CONDITIONING'S BIGGEST PROBLEM

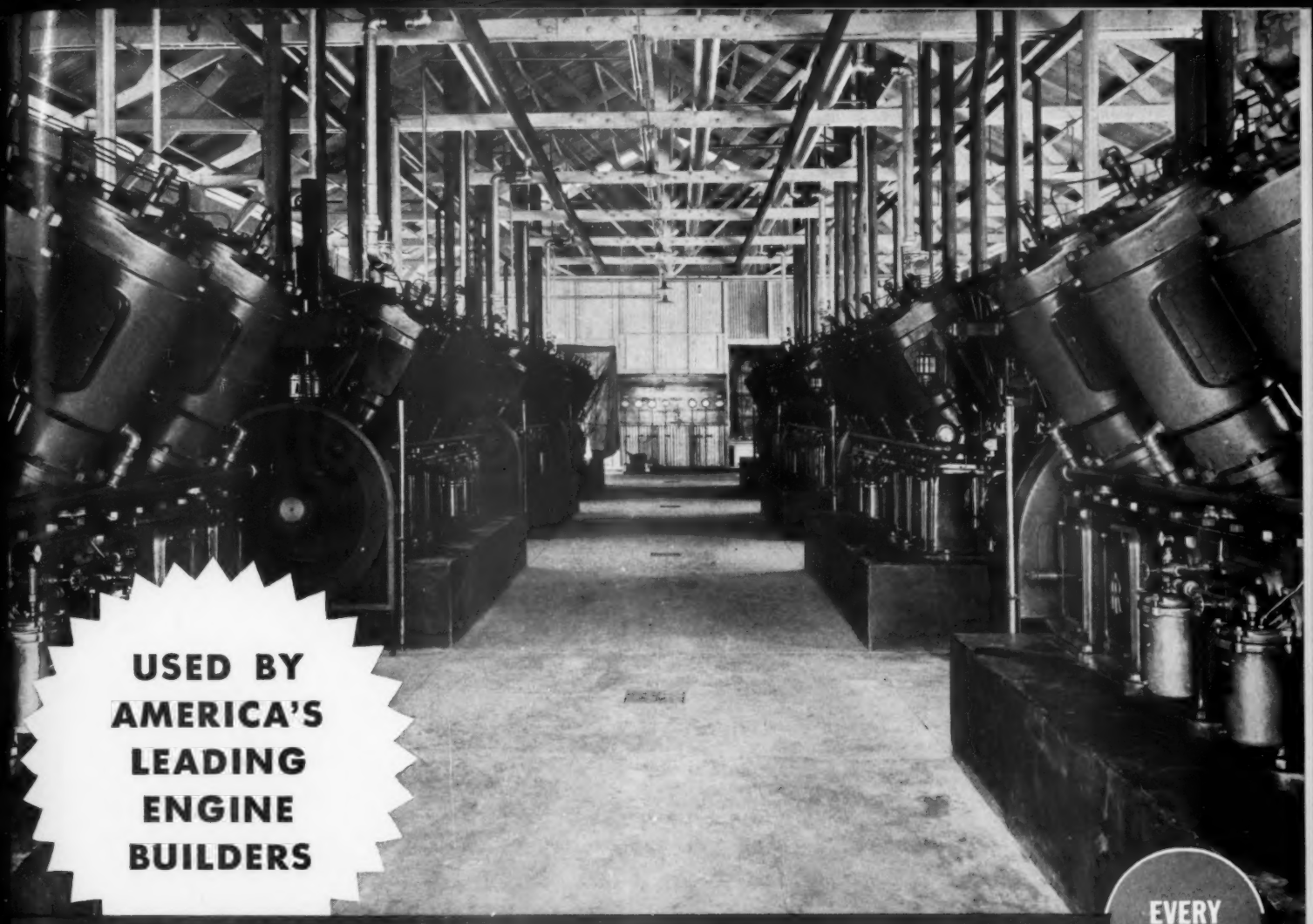
Gas, logical refrigerating agent for summer air conditioning, has in this new industry a tremendous potential load. Future growth of Conditioning is threatened by problems involved in supplying and disposing of water. The logical solution—recycling—is made easy by utilization of roofs as cooling beds. Roofs covered with Koppers Coal Tar Pitch and Tar-Saturated Felt are particularly well adapted for cooling service, as these materials are unaffected by long contact with water. For information, write Koppers Company, Tar and Chemical Division, Pittsburgh, Pa.

(*Above, Left*) A spray cooling system for cooling recycled water from heat exchanger of air conditioning systems.

(*Left*) Another method. The sheet of water also acts as an insulating blanket, against both heat and actinic rays of sun. This decreases the load on the cooling system.

Principal Koppers Products Serving the Gas Industry

MECHANICAL TIME CYCLE CONTROLS
COKE OVEN PLANTS
WATER GAS SETS
HEAVY OIL WATER GAS PROCESSES
SCRUBBERS
CONVEYING SYSTEMS
FAST'S SELF-ALIGNING COUPLINGS
TREATED LUMBER
FLOOR STANDS • FIRE HYDRANTS
GAS PURIFICATION PLANTS
MOTOR FUEL RECOVERY PLANTS
OIL FOGGERS
BITUMINOUS-BASE PAINTS
COAL TAR PITCH AND FELT ROOFING
WATERPROOFING MATERIALS
PIPE
AMERICAN HAMMERED PISTON RINGS
TARMAC PAVING MATERIAL
SULPHUR RECOVERY
GAS HOLDERS • TANKS
GAS, AIR, TAR AND WATER VALVES
DISINFECTANTS
INSECTICIDES • DEODORANTS



USED BY AMERICA'S LEADING ENGINE BUILDERS

AMERICAN HAMMERED PISTON RINGS

EVERY SIZE

EVERY TYPE

Koppers Divisions, Subsidiaries and Affiliates Serving the Gas Industry

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BARTLETT HAYWARD DIVISION — BALTIMORE, MD.
ENGINEERING AND CONSTRUCTION DIVISION — PITTSBURGH, PA.
GAS AND COKE DIVISION — PITTSBURGH, PA.
TAR AND CHEMICAL DIVISION — PITTSBURGH, PA.
WESTERN GAS DIVISION — FORT WAYNE, IND.
EASTERN GAS AND FUEL ASSOCIATES — BOSTON, MASS.
THE KOPPERS COAL COMPANY — PITTSBURGH, PA.
KOPPERS-RHEOLAVEUR COMPANY — PITTSBURGH, PA.
NEW ENGLAND COAL & COKE COMPANY — BOSTON, MASS.
THE WHITE TAR COMPANY OF NEW JERSEY, INC. — KEARNY, N. J.
THE WOOD PRESERVING CORPORATION — PITTSBURGH, PA.
NATIONAL LUMBER & CREOSOTING COMPANY — TEXARKANA, ARK.

Pictured is an installation of Ingersoll-Rand XVG Gas Engine Driven Compressors in a gasoline plant. American Hammered Step Seal Rings, and Scraper Drain Oil rings are used. The former combines the strength of the single-piece ring with the sealing qualities of the multiple-piece ring. The latter rides over the oil on the cylinder wall on the up-stroke, scrapes oil into the groove on the down-stroke, protects walls from wear.

Many types of industries the world over, use Ingersoll-Rand compressors for any difficult job. This company has used American Hammered Piston Rings as standard equipment for many years.

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AMERICAN HAMMERED PISTON RING DIVISION
BALTIMORE, MARYLAND

FOR EVERY PURPOSE

Above— Step Seal Ring
Right— Scraper Drain Oil Ring

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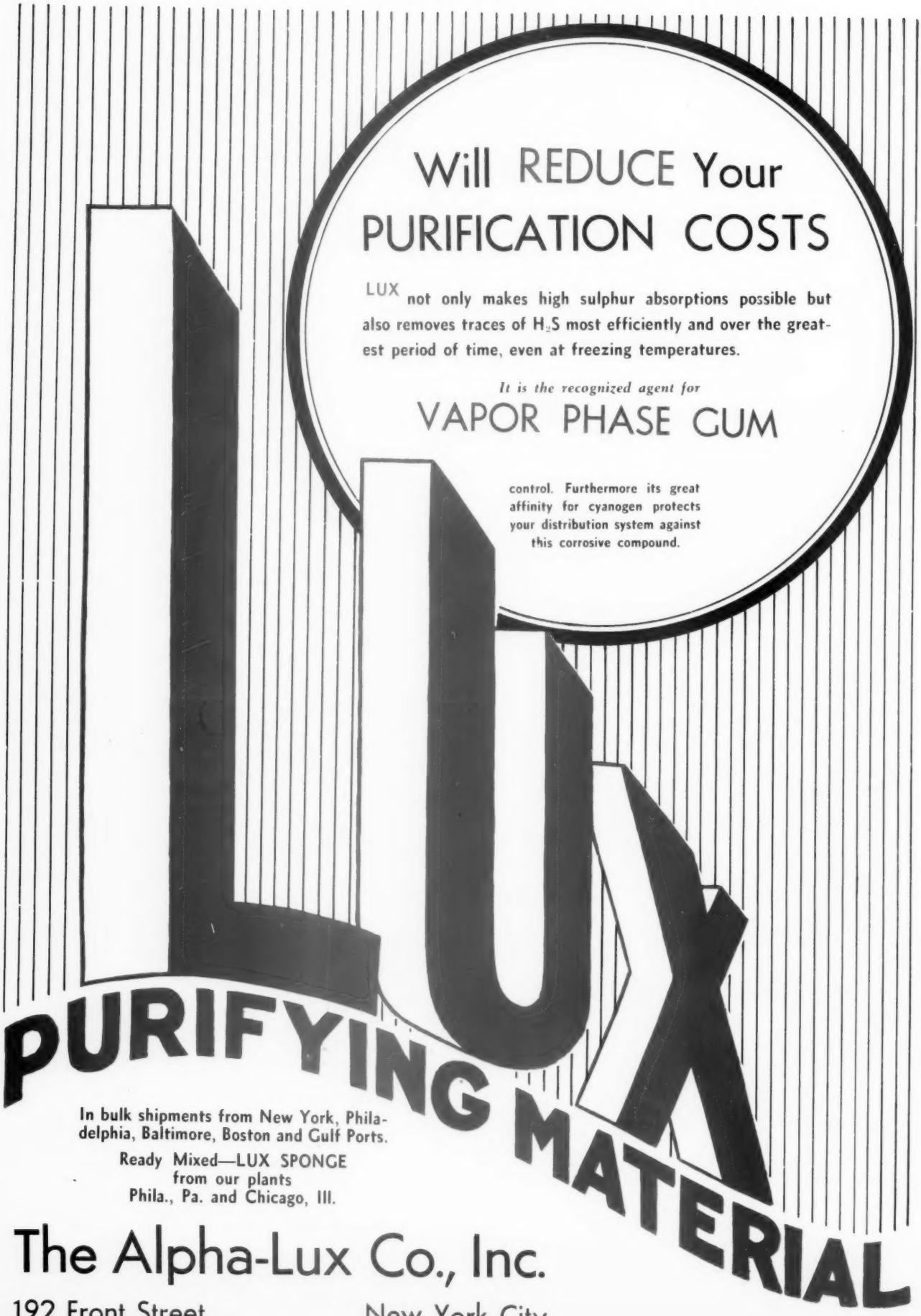
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Organization Development and Direction of a Domestic Sales Force

By

Carl B. Wyckoff

Public Service Company of Colorado,
Denver, Colo.

IN discussing this subject it must be assumed that there is seldom a situation in which a sales manager is compelled to start from scratch. There is always some activity along merchandising lines, part of which is usually good and part indifferent, depending to a considerable extent upon the policy of the company. However, in a situation where a large city changes from manufactured to natural gas, something must be done that will produce the maximum amount of dependable revenue in the shortest space of time.

When it is considered that one cubic foot of the new gas will do the same work as two feet of the old gas, and there is at the same time a decrease in rates per therm, one sees that the situation must be met with much courage. Also a good knowledge of the fundamentals involved must be had by the one upon whom the responsibility falls.

It is a long step between selling gas for frying eggs and heating shaving water only, so to speak, to a point where fifty per cent of the customers' homes are equipped with automatic water heaters, and other domestic fuels have ceased to be a serious competition. This has been accomplished by a number of companies and the purpose of this article is not to give any one person's views or to enumerate any specific company's ideas, but to try and merge the plans of those who have been especially successful.

Dealer co-operation is a splendid idea which should be encouraged as far as possible without subsidation. However, it alone will not put the maximum available load on the line.

Again the insertion of an advertisement for a given number of salesmen will not eliminate future headaches. In fact, the first job is quite commonly that of selling one's own company on the idea that there must be a thorough understanding and complete co-operation throughout the entire organization.

A good sales organization would be greatly handicapped with an inadequate installation and service department. Also, too apprehensive or conservative a credit department would strangle the business.

Credits

Good, satisfactory, large revenue producing jobs run into real money and the customer must not be burdened beyond his ability to pay conveniently. It would be hard to sell a man a new suit of clothes if he had to wait until the pants were paid for before he could have the coat and vest.

100% cash in advance would be a wonderful thing for the collection department, the same as no payment down and pay as you please would certainly be a boon for the sales division. Naturally, neither of these conditions is desired, but there certainly is some logical intermediate point that will bring about the most desirable results for all concerned.

Experience has proven that terms as long as four years are most productive of a maximum amount of sound load building. For instance, with liberal terms as advocated, a good sales organization will commonly sell a gas designed househeating job, thermostatically controlled, together with the necessary improvements to the existing circulating system and also ceiling insulation, whereas with terms too close the customer's circumstances might limit him to a make-shift conversion job. The former will produce not only a well satisfied and permanent customer, but a booster as well, since the operating costs will commonly not exceed the previous fuel expense. With the latter the increase in heating costs may easily rise sufficiently to result in the loss of the customer. About 40% is the maximum premium that any considerable number of customers will pay for the convenience and comfort of gas heat in the home.

A customer's credit should be based upon his reasonable expectancy as to general ability to pay. A tremendous number of people are honest and live up to their obligations, therefore the individual's record with one's own company is practically sufficient, unless it is very apparent that he will become a liability.

The nature of the business assures the collection of the commodity charge in practically every case, and the merchandise can usually be repossessed in case of non-payment. Such situations represent such a very small portion of the business that they can be cared for by a small bad debt reserve.

Experience has shown that three per cent of the net sales set aside for this purpose will amply protect the credit department for their liberal co-operation.

Collections

Competitive fuels are very commonly sold on the basis of a minimum number of deliveries, while the payments are met at the customer's convenience. Theoretically this cannot be done with gas and, therefore, the few severe months of the heating season often cause a temporary hardship upon one whose ultimate ability to pay is satisfactory. However, an understanding and co-operating collection department will be able to handle the small percentage of these instances as they occur.

Rates

As 1000 cubic feet of natural gas per month will be sufficient for the average family's cooking requirements, and 2000 will provide for the automatic water heater, the rate structure should yield as high a return as possible for this average consumption. Beyond this amount the rate should drop as abruptly as possible to invite not only a good househeating load, but auxiliary heating as well. Many of the latter jobs will grow into the former through not only the appreciation of gas heat, but the dispelling of the fear of operating costs.

While the above points are not under the jurisdiction of the sales manager, still they are vital to his and the company's success, so it is reiterated that the first, and one of the biggest jobs, is to see that the organization as a whole, and particularly the board of directors, is sales minded. When this has been accomplished, the first lap of the race has been won. The future will then depend upon one's ability to select men, train them and direct their efforts. This, together with an indomitable aggressive application of sound fundamental policies, will produce the desired results.

A sales manager is very much like the high pressure cylinder of a compound steam engine. He not only has to have enough steam for himself, but he must have plenty of excess to pass on to his men.

Personnel

The number of salesmen required will generally approximate one for each 1500 individual homes. Thus in a city of 300,000 population with an average of five people per home, the organization should normally consist of forty territorial sales representatives.

These men will produce better results if divided into two groups, one of which handles purely domestic appliances such as ranges, water heaters and fire place heaters, while the other group confine their activities entirely to househeating.

Thus, a city of such size is divided into twenty districts, to each of which a team of two men is assigned. With a set-up like that it is possible for each man to canvass his territory thoroughly and contact each home twice a year. Any less coverage is insufficient, while any more would be unprofitable.

At first glance this team idea seems a duplication of man power as one's first thought is naturally that one man can easily represent the whole line. However, experience has proven to the contrary. Salesmen are human like every one else, and cannot be blamed for leaning towards the lines of least resistance. It is quite true that a househeating sale will produce a higher remuneration, but at the same time it requires more effort than that of an ordinary piece of equipment.

These teams must co-operate and work towards each other's interests to secure the best results, and one should keep a weather eye constantly on this angle. Occasionally transfers will be necessary where there is an apparent lack of true partnership spirit.

Regardless of how good or energetic a salesman may be, it certainly is an exceptional man who will not require some direction, assistance and general supervision. With a large group of men it is impossible for the sales manager to so divide himself as to give each man proper consideration and assistance. In fact, ten is the maximum number of men that one man can handle properly, so the department should be divided into like groups, over each of which a supervisor is appointed. With such a set-up each salesman will be responsible to his supervisor, and he in turn to the sales manager. With the addition of the proper stenographic and clerical help, together with a sales minded heating engineer and his assistants, one then has a well organized personnel.

Choosing Salesmen

Herein lies a problem that no one can reduce to an exact science. No set of rules are at all times applicable or infallible. Only a thorough knowledge of human nature, together with a broad experience will enable a sales manager to surround himself with a satisfactory group of actual producers. There are, however, a number of salient features to be considered in connection with the employment of a prospective salesman.

First of all, the Public Utility Company is a permanent, substantial organization whose reputation and integrity must not be jeopardized. Further, it is quite important that the turn-over in man power be held at a minimum. Therefore, each individual applicant must pass through the eye of a needle, so to speak. A thorough analysis would include consideration of the following qualifications, Viz:

1—Personal Appearance
2—Personal Appeal
3—Physical Condition
4—Past History, Record and Education
5—Responsibilities
6—Adaptability
7—Tractability
8—Personal Habits

Quite naturally an applicant's personal appearance will be the first qualification that will register in the employer's mind. However, this point may be taken with many large grains of salt. For instance, we have the type that appears like a United States Senator, in fact, sometimes he looks so good that it makes one wonder. Too many times he is all front. Human nature is so constituted that most individuals like to excel in some one thing. Nature may have done this for this type and he may expect to go through life on his personal appearance with the result that he develops into a high-spotter and often times only a gust of wind. The other extreme is the unfortunate type that could not be considered. However, we do have the intermediate type whose personal appearance reflects a sound substantial personality.

Personal Appeal

Very frequently this point is one's next consideration. The applicant may sell himself to you through a good approach and presentation of his story. If he can do this with you he can quite passably do it with his prospects for, after all, if he cannot sell his services it will be hard for him to sell anything else.

Physical Condition

This qualification requires no particular discussion. One can readily see, as a rule, whether or not the applicant is constituted for the work, and if there is a condition which is not recognizable, it will show up in the medical examination.

Past History, Record and Education

Herein frequently lies the test. First the applicant must certainly bear an acceptable reputation as an honest, law-abiding citizen. He should have proven himself capable of consistent hard work, whether it be selling or digging ditches. In fact, he should be able to show conclusively that he has made his living for at least three years as a salesman exclusively. He should be a man who has definitely chosen selling as a profession and who is not just trying it out.

The applicant's education is not a serious matter. Of course he cannot be crude, but as long as he is capable of carrying and expressing himself so as not to reflect unfavorably, he is not necessarily handicapped. Generally a man who has completed his eight grades and possibly a year or two of high school will answer very well. Should he consider this point himself, he will undoubtedly feel that he has this lack to overcome and will exert himself continually along this line.

The highly educated person, while possibly successful in certain lines of selling, is usually not adaptable for house to house work. Should he be so inclined, he would of course be an asset, but too often he is a square peg in a round hole. If he has had to work his way through school and make great sacrifices he is fortunate, as he then comes nearer knowing "what it is all about". These men generally have some objective in

Republic Offers

A MAGNIFIED MARKET FOR GAS HOME HEATING

THROUGH THE

NEW REPUBLIC HEET-RE-TREEVER

● **The REPUBLIC HEET-RE-TREEVER cooperates with the Republic Gas Burner to attain . . .**

THREE IMPORTANT OBJECTIVES IN GAS HOME HEATING

1. INCREASED COMFORT—Warm Floors and Basements.

With the REPUBLIC HEET-RE-TREEVER the basement is no longer chilly and uncomfortable. The floor zone in the living quarters is warmed so that large temperature differentials between floor and ceiling are eliminated.

2. A REDUCTION IN OPERATING COST—Averaging 15%

The major portion of the heat now wasted up the chimney is retrieved by the REPUBLIC HEET-RE-TREEVER. There is a further substantial saving through the elimination of excess ventilation.

3. ELIMINATION OF LIABILITY—No chimney required.

The customer's chimney is not used with the REPUBLIC HEET-RE-TREEVER except for emergency operation. There can therefore be no liability for damage to chimney, walls, or furnishings.

The REPUBLIC HEET-RE-TREEVER is a new system of induced draft that utilizes to a high degree that portion of the heat input formerly wasted up the chimney.

The REPUBLIC HEET-RE-TREEVER after years of testing is now offered to the gas industry as an appliance that will protect existing gas load from competition and greatly expand the market for new heating load.

Write today for full information.

"You Can Do It Better With A Republic"

AUTOGAS CORPORATION

22-58 Diversey Parkway **Chicago, Ill.**

General Sales Agent: **REPUBLIC HEATERS SALES CO.** **CHICAGO, ILL.**

mind and more or less definite plans for some specific line of activity. Their hearts will not change. They will not be happy in our line of work, and will not make permanent salesmen.

Too frequently the others have been coddled all their lives. Parents, especially those who have had a hard struggle, are very apprehensive as to the future welfare of their children. Very commonly one hears the expression "I do not want my boy to have to work like I did", or again, the child is warned throughout life to get a good education so he won't have to work. All this is again emphasized to him when he has been handed his diploma. Such a man cannot be criticized for feeling that he has something due him for his efforts. This is quite true, but the fact remains that he does not usually survive the battle of the screen door. He would be much better equipped for our work with some years of experience rubbing elbows with people, thus gaining much knowledge of human nature.

Responsibility

For the same reason that a rich man's son is handicapped, so is a salesman who has little responsibility. Sales work is intangible. It requires constant personal solicitation and is far different from routine work that falls on one's desk. The constant day in and day out ringing of door bells, following up prospects, getting credits turned down, facing a budget and other innumerable discouraging factors, are not much of an inspiration to a man who has no children, who carries no life insurance, is not buying a home, whose wife has a good job, or who has a fair income from other sources.

Figuratively speaking, there is no particular harm done if the applicant has a few wrinkles in his stomach. There is nothing like necessity, as well as interest, to spur one into action. Of course, in reality the desirable man is not the one who is out of a job, unless he has very good reasons, nor the person who is constantly changing positions, but the one who is regularly employed but desires a change and to whom your company and line of work appeal.

Adaptability

Many a salesman who has been a pronounced success in selling to the retail trade or has done equally as well as a floor man would not be happy in house to house work. Other types have been trained along technical or performance lines, their experience having been entirely different from one who is selling an idea or a service.

Tractability

This qualification might just as well be skipped to a great extent. After all it is far better to give a salesman as free a rein as possible, for if he is up on his toes he will work out his problems with only a general direction from headquarters. Should he be of the polly parrot type, he is not wanted anyway.

Personal Habits

Time and history have proven that a salesman's personal habits are his own personal business. They should not effect us as long as he keeps his nose reasonably clean and does not reflect unfavorably upon the company. Many a top salesman likes his liquor and many another top salesman would not touch a drop. Some mighty good ones of the former class take time off now and then to catch up. Therefore, the point to be considered is whether or not he mixes it with business.

Age

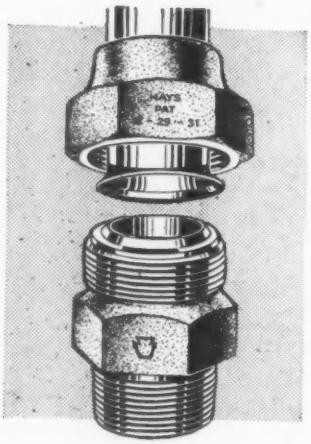
An age cross section of a good sales organization will show all the way from the "pup" who has excellent promise and whom you hope to train, to the old war horses who are leading the production and carrying considerable of the load for the department. There is no such thing as a definite age. They cannot all be young and neither can they all be old. The old war horses will not be with you always, so there must be others coming on to take their places.

In recruiting new material, no one can expect to be unerring in his choice, but he can give the preceding thoughts due consideration, giving and taking here and there. This having been done he can at least console himself by knowing that he has done the best he could to organize a good dependable sales department.

A further article by Mr. Wyckoff on a related subject will appear in the October issue of the Journal.—Ed.

TWO SEALS are better than ONE

in copper pipe connections



Only Hays Double Seals give the double protection of 2 planes of contact between copper pipe and fitting (45° to 90°). This gas tight seal is strong enough to withstand any service stress. Your mechanics will like the easy and rapid action of Double Seal connections —with no thread to litharge. They are positive connections, copper to copper with no sealing agent required. Smooth copper pipe bends can eliminate sharp iron pipe fitting turns and streamline the flow of gas or water reducing friction. Use Double Seals and copper pipe on appliances and on underground service connections for a long life of trouble-free service.

HAYS MFG. CO. ERIE, PENNA.

Specify HAYS DOUBLE SEALS

When Gas Company May Enforce Rules and Regulations

By

Leo T. Parker

Attorney at Law
Cincinnati, Ohio

IT is well established law that a gas company is a public service corporation, and that it is bound to furnish gas to all consumers who will comply with its reasonable rules and regulations. On the other hand, consumers are not bound to comply with unreasonable rules and regulations.

Therefore, an important question of the law is: What is a reasonable rule or regulation? Broadly speaking, it is one that the gas company may enforce to safeguard its investment generally, but not specifically with respect to one or only a few consumers.

For illustration, the higher courts have consistently held that the right of a gas company to require a reasonable deposit, as security for the payment of service to be rendered is generally recognized as reasonable. Moreover, gas companies may enforce regulations exacting payment in advance in reasonable amounts or requiring the deposit of security. The reason for the legality of such a rule is that a public utility company is bound to furnish gas to those who apply, and it is but just that it be *not* compelled to supply unknown and irresponsible persons with gas without assurance in some form that it will receive prompt payment.

Notwithstanding this established law, a gas company may not refuse to supply gas to consumers upon payment of deposits in advance, as required by the rules and regulations of the company, merely because he declines and refuses to pay a disputed bill or to pay past due gas bills for some other and independent use, or at some other place or residence, or for a separate or distinct transaction from that for which he is claiming and demanding a gas supply. (Crumley v. Watauga Company, 99 Tenn. 420; Wood v. Auburn, 87 Me. 287; American Company v. State, 46 Neb. 194.)

In other words, the higher courts have taken the view that a gas company cannot be authorized, or assume authority, which will allow it to become both judge and jury in the determination of a disputed claim due it from a consumer. To do so would be dangerous and investing it with a power that invites extortion.

Therefore, the legal rule is established that gas companies must supply gas to consumers so long as they will promptly pay current installments, and otherwise conform to the reasonable rules governing the supply of gas. This is so because gas companies receive public franchises for the purpose of serving the people for reasonable compensation, but they have no right to use the privileges granted for the purposes of oppression, discrimination, or harassing or annoying the consumers. (Hatch v. Consumers' Company, 17 Idaho, 204.)

For illustration, in the late case of Elwell v. Atlanta Gas Light Company, 181 S. E. 599, it was shown that a consumer became indebted to a gas company for gas furnished in the sum of $25.75, and subsequently he moved. After he moved, at which time he was still indebted to the company for the gas furnished, he entered with the gas company into the usual contract whereby he paid $5 meter deposit for gas to be furnished him at his present residence. The gas company continued to furnish gas to the consumer at his new residence for about one month, during which period the consumer still owed the bill of $25.75. In the meantime the consumer became bankrupt and, among other debts, he listed his debt to the gas company.

The gas company notified the consumer that unless he paid a $25 meter deposit the gas supply would be cut off. The consumer refused to pay this deposit and the company cut off the gas supply.

The consumer filed suit against the gas company for damages and alleged that actuated by malice on account of the proceeding in bankruptcy, the company cut off his supply of gas, and failed and refused to furnish more gas until a new meter deposit of $25 was made, which was a mere subterfuge to coerce him into paying a past-due obligation which he had lawfully and rightfully listed in his schedule of liabilities contained in his petition in bankruptcy.

It is important to know that although the lower court held the gas company not liable, the higher court reversed this verdict stating important law, as follows:

"We are of the opinion that if this increase in deposit of $25 was bona fide requested in accordance with a reasonable rule and regulation to exact payment in advance, or as security in advance in a reasonable amount for the future consumption of gas, under the present contract, the defendant (gas company) would not be violating its duty, and the exercise of this authorized right, whether done maliciously or not, would not make the defendant (gas company) liable. On the other hand, if the additional deposit of $25 was required, not in accordance with a reasonable rule and regulation, but arbitrarily in order to coerce the defendant (consumer) into paying the old bill, arising under a separate contract at a former residence, that is, if the defendant (gas company) when he received the $25 additional advance deposit, was intending to credit it on the old account against the wishes of the plaintiff, the defendant (gas company) would be violating its duty to the plaintiff."

Must Prove Damages

While it is well settled law that a gas company may be held liable in damages for wrongfully cutting off a gas supply, yet the testimony must prove positively that the damage complained of actually resulted from cutting off the supply, otherwise the company is not liable.

For example, in Fort Smith Gas Company v. Blankenship, 102 S. W. (2d) 75, reported May, 1937, it was disclosed that a consumer was in default in the payment of his gas bills. The January bill was for $6.40, and this included 42 cents unpaid on the December bill. This was not paid when due on January 10th. The bill on February 10th was $7.07. Notice of the delinquency was sent to the consumer on February 5, with the notification that unless the consumer paid the bill his gas supply would be cut off, in accordance with a rule adopted by the company.

On February 17 there was still due $1.84 which was paid by the consumer at the gas company's office at 9:15 A. M. on this day. At 10:25 A. M. the gas company cut off the gas supply. The gas was discon-

nected when a child was sick and the house began to get cold. The mother then wrapped up the baby and took it to another home. A day or two later the child grew worse, afflicted with a disease common to children and known as bronchitis. Suit was filed against the gas company for damages.

It is important that in view of these facts the lower court held the gas company liable. However, the higher court reversed the verdict because it was not proved positively that cutting off the gas resulted in the child becoming sick. This court said:

"We have set out in detail this testimony, and without extended comment suggest that the jury could not determine that the discontinuance of the gas service caused this illness or aggravated it."

Public Service Commission Rules Superior

Under all circumstances a public service company may make and promulgate reasonable rules, *not* in conflict with those of the Public Service Commission. Another important point of the law is that state laws, and public service commission rules, regulating cutting off gas supply are applicable both to charges for services rendered and deposits by consumers to guarantee payment for gas.

For illustration, in Peddicord v. Tri-City Gas Company, 168 So. 166, it was shown that rules promulgated by the Public Service Commission provide that any utility may require at any time from any customer, or prospective customer, a cash deposit intended to guarantee payment of current bills. Another rule of the Public Service Commission provides that no utility shall discontinue its service to any regular customer for failure to make payment for such service until the utility shall have first given notice to the customer of his delinquency and of its intention to disconnect service on account of such delinquency. If such delinquent account is not paid within *five days*, after such notice is given, the utility may then disconnect service without further notice.

A person desiring to open up a restaurant under the name of Del Monte Barbecue & Lunch Room made a preliminary request for service in writing, saying: "*** I agree to pay $10 with standard application and $5 a week until a total of $25 has been paid which is to be used by the company as a deposit to guarantee payment of bills rendered for such service."

The standard application pursuant to rules of the Public Service Commission was also filed and accepted, the $10 cash paid, and the service duly installed on August 18, 1934.

However, the restaurant owner failed to make the agreed weekly payments. Although none of the weekly payments were made no statement of same or demand was made by the company therefor until September 19th, on which date the company sent the cutoff man to demand immediate payment of the $15 balance due on the deposit, and to cut off service if not paid. Demand was made, payment was not made, and without further notice or delay the service was cut off within some thirty minutes.

The restaurant owner sued the gas company for damages. The counsel for the company argued that the rules adopted by the Public Service Commission were applicable only to money due by consumers for gas supplied and *not* for deposits due and based upon rules and regulations adopted by the company.

Although the lower court held the company not liable, the higher court reversed this verdict and in holding the rules of the Public Service Commission applicable to both service charges and deposits, this court said:

"Our conclusion is that the rule is not limited to bills for services rendered. . . . A sudden discontinuance of service may work hardship and even perils to the customer and his family. . . . The deposit, payable pending service, is in essence a bill or charge for service. There is no higher obligation to pay in a deposit to guarantee payment for service, than to pay for the service already received. Both are for service, demands which the utility may make for continuance of service. The reason for five days' notice is as applicable in the one case as in the other."

Validity of Municipal Ordinances

Frequently, deposits required by gas companies are insufficient to cover or secure the amount of gas bills. Sometimes the consumer moves from a rented house, and the only recourse is against the landlord, or the owner of the property to which the gas was supplied.

Therefore, it is important to know that city ordinances may be valid by which property owners are liable for payment for gas supplied to persons on the premises. However, city ordinances of this nature must be authorized by a state law, otherwise the ordinances are void.

Various courts have held that the primary legal purpose of a gas company is not to furnish gas on a purely commercial basis, but for the benefit of consumers. Therefore, all gas companies impliedly assume liability for negligent failure to furnish gas; and the negligence of wilful misconduct on the part of the gas company officials. Obviously, as above indicated, a gas company may by following state laws and Public Service Commission's rules prescribe reasonable rules and regulations. And while ordinarily a city ordinance is void which is not authorized by a state law, it is well settled that a city council may without statute authority enact reasonable and necessary regulations to safeguard the health and general welfare of the citizens, providing the ordinance does not conflict with state laws. Also, a city ordinance is void which is not authorized by a state law and does not safeguard the health and general welfare of the citizens.

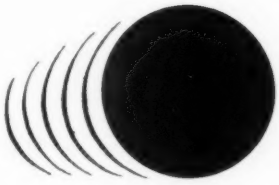
For this reason the courts are unanimous that either a city ordinance or gas company rule is void which requires a property owner to pay a delinquent bill for gas furnished the tenant of the premises, unless a lien is given on the premises by a valid state law.

A review of leading cases discloses that higher courts have held that a regulation of a gas company not authorized by a state statute which required property owners to pay for gas is unenforceable. (153 N. Y. 435.) Without state law authority a property owner cannot be held liable for the bill of his tenant. (105 Iowa 535.) Property cannot be subjected to a lien for unpaid gas bills unless a state authorizes the lien. (171 Mass. 329.)

It is important to know that a review of higher court cases discloses that state laws are valid by which gas companies are given liens on private property to secure payment of gas bills. Moreover, such bills need not be incurred by tenants of the property owner. (163 N. E. 82.)

In view of the decisions rendered by the late higher courts, it is apparent that gas companies may enforce rules and regulations that do not contradict any state law or city ordinance; that are authorized specifically by a state law, or a city ordinance that is valid and enforceable; that are broadly, although not specifically authorized by a state law; and that are not unreasonable. Therefore, gas company executives should instruct their employes regarding the law on this subject.

MOMENTUM



Last year the gas industry united in an effort to give the public a better understanding of its product and services. A comprehensive national advertising campaign was designed to describe and sell the advantages and exclusive features of GAS for domestic, commercial, and industrial purposes.

The effectiveness of the advertising has already been felt by the more than 700 participating gas companies. 400,000 "Controlled Cooking" booklets have been distributed . . . Over 1,500,000 customers of gas companies participating in the Mystery Chef Radio Program have called in person at the offices of these companies for their copy of the booklet, "Be an Artist at the Gas Range" . . . Gas appliance sales have shown a substantial increase.

The momentum of this initial drive is now swinging us into the second year of the program. In the new campaign, the addition of several magazines has greatly increased the national circulation, and during 1937-38 over 100,000,000 advertisements will feature gas for cooking and for refrigeration, water heating and house heating. The campaign slogan will be "Gas Is Your Quick, Clean, Economical Servant."

The Consolidated Edison Company of New York is enthusiastic about this cooperative movement in the gas industry. We are proud to participate.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

AND AFFILIATED COMPANIES

ELECTRIC, GAS, AND STEAM SERVICE FOR BUSINESS AND THE HOME

The Annual A. G. A. Convention

Sept. 27th to Oct 1st

ALL advance indications point to a large attendance and a splendid program at the Cleveland Convention. The hotels report a gratifying number of reservations with more coming in every day. The subjects scheduled for discussion are of vital importance to the gas industry and the calibre of the speakers insures a thorough and interesting handling of them. Finally the opportunity to visit the A. G. A. Testing Laboratory is something no gas man will wish to miss.

The Laboratory will be open to delegates during the entire Convention, and transportation to it will be provided from Convention Headquarters.

Wednesday has been designated as executives' day at the Laboratory and admission to the morning program will be by invitation. Two one-hour sessions will be held in the Laboratory building, starting at 10:00 A.M. and ending at 12:00. The principal speakers at these sessions will be R. W. Gallagher, vice-president, Standard Oil Company of New Jersey, and B. J. Mullaney, vice-president, The Peoples Gas Light and Coke Co., Chicago, both past presidents of the American Gas Association.

In order to give adequate time for visits to the Laboratory, the General Session of the Convention on Wednesday will be held in the evening and will combine business and entertainment. President Russell will deliver his address at that time. Because of his unusual grasp of the problems of the gas industry and his activity in helping to solve them, his remarks will be of the utmost interest and importance. The presentation of awards and medals and a concert by the Male Chorus of the Rochester Gas and Electric Corporation will be other features of the session.

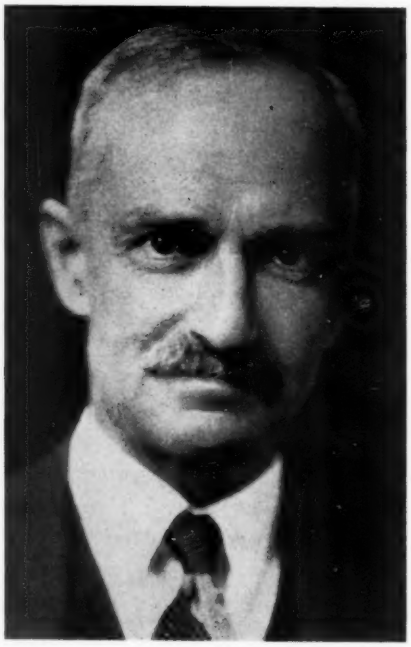
At the first morning session Walter C. Beckjord, Vice President and General Manager of Columbia Gas and Electric Corporation, will discuss "What the Gas Industry Must Do Next." For many years Mr. Beckjord has been making a study of trends in the gas industry and he is equipped to handle the subject he has chosen with authority.

Other General Sessions speakers from the ranks of the gas industry are expected to be N. C. McGowen, nominee for President of A. G. A. for the coming year, Conrad N. Lauer, President of The Philadelphia Gas Works Company, Hall M. Henry of New York, Hugh Cuthrell of Brooklyn and Henry O. Loebell of Natural Gas Pipe Line Co. of America.

In addition to those from the gas industry there will be various guest speakers, among them Charles C. Parlin of The Curtis Publishing Company, a pioneer in market research, L. S. Reagan, Vice President of The Webster Engineering Company and an authority on steam generation by gas, and Dwight J. Baum, a prominent architect.

The Convention program (subject to corrections and changes) is herewith appended.

The A.G.A. Testing Laboratories



HERMAN RUSSELL
Pres. American Gas Association

NATURAL GAS DEPARTMENT

MONDAY, SEPT. 27, 10:30 A.M.

Opening Remarks and Chairman's Address, GEORGE E. WELKER, United Natural Gas Company, Oil City, Pa.
Address of President, HERMAN RUSSELL, Rochester Gas and Electric Corporation, Rochester, N. Y.
Address of Managing Director, ALEXANDER FORWARD, American Gas Association, New York City, N. Y.
Meeting Competition, F. M. BANKS, Southern California Gas Company, Los Angeles, Calif.
Necessary Standby Fuel and Equipment for Industrial Natural Gas Customers (Speaker to be announced.)

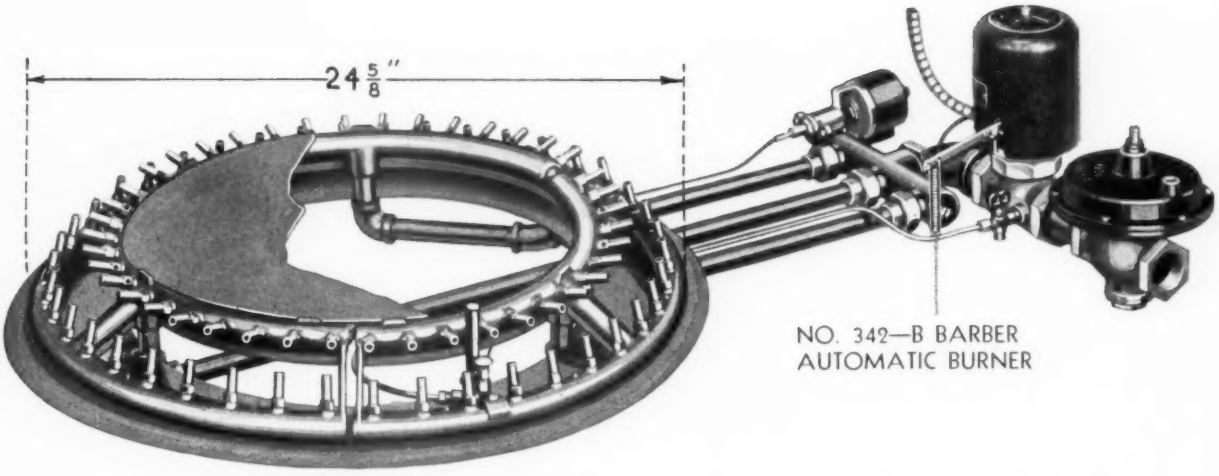
MONDAY, SEPT. 27, 2:00 P.M.

New York's World Fair, WILLIAM T. RASCH, American Gas Products Corporation, New York City, N. Y.
2000 Years of Progressive Evolution of the Worker, A. A. NICHOLSON, The Texas Corporation, New York City, N. Y.
Legislation and Taxation, WILLIAM A. DOUGHERTY, Gas Companies, Incorporated, New York City, N. Y.
Report of Nominating Committee
Election of Officers

ACCOUNTING SECTION

TUESDAY, SEPT. 28, 2:00 P.M.

Address of Chairman, H. E. CLIFF, Public Service Electric & Gas Co., Newark, N. J.
Nominating Committee, F. L. GRIFFITH, *Chairman*, The Peoples Gas Light & Coke Co., Chicago, Ill.
Luncheon Conference Committee, G. B. WEBBER, *Chairman*, Public Service Electric & Gas Co., Newark, N. J.
Customer Relations Committee—"Organize for Better Service," J. GORDON ROSS, *Chairman*, Rochester Gas & Electric Corp., Rochester, N. Y.
Uniform Classificationof Accounts Committee, F. L. GRIFFITH, *Chairman*, The Peoples Gas Light & Coke Co., Chicago, Ill.



Barber Offers Heating Equipment Dealers a Clean Product and a Clean Deal

Good news travels fast. Mention Barber Gas Conversion Burners to anyone—and the chances are he knows their name and reputation. Naturally, it's easier and more profitable for you to *sell* Barber Burners.

We take great satisfaction in our host of loyal Barber dealers. It is our purpose to provide these concerns, old and new, with even closer and more thorough cooperation from the home office. Constructive sales aids and selling supervision will be furnished wherever requested, so that all Barber dealers may enjoy a profit commensurate with the superiority of the Burner they sponsor. Proper protection will be given to distributors and preferred dealers in restricted territories. Perhaps there is an opportunity in your neighborhood for generous profit. Why not write us?

The "B" Model shown above is built in eight different sizes to accommodate round grate diameters from 12" to 34". Models are also Tailor-made to SUIT and FIT grate dimensions of oblong furnaces and boilers, and to insure a "scrubbing" flame action against the side walls of firebox. Barber's 1900° Fahrenheit Flame Temperature produces the highest possible efficiency and economy. Equipped with Baltimore Safety Pilot for positive and accurate Safety Control. Furnished for either Manual or Thermostatic regulation. Listed in the A. G. A. Directory of Approved Appliances.

Ask for Illustrated Catalog and Price List on Conversion Burners for Furnaces and Boilers, Burner Units for Gas Appliances, and Gas Pressure Regulators.

THE BARBER GAS BURNER COMPANY

3704 Superior Avenue
Cleveland, Ohio

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Address Michigan Inquiries to
The Barber Gas Burner Company of Michigan
4475 Cass Ave., Detroit, Michigan

BARBER BURNERS AND REGULATORS ARE DESIGNED FOR

Air Conditioning Equipment • High Pressure Boilers (Tubular and Tubeless) • Bakery Ovens • Doughnut Kettles • Metal Pots • Garage Heaters • Coffee Urns • Hair Dryers • Space Heaters • Floor Furnaces • Clothes Dryers • Water Heaters • Confectioners' Stoves • Vulcanizing Machines • Pressing Machine Boilers • Japanning Ovens • Core Ovens • Banana Room Heaters and many other Appliances

BARBER *Automatic* JET GAS BURNERS

FOR WARM AIR FURNACES, STEAM & HOT WATER BOILERS

General Accounting Committee—"General Accounting Problems," H. L. GRUEHN, *Chairman*, Consolidated Gas Electric Light & Power Co., Baltimore, Md.
Exhibit Committee, P. J. SWEENIE, *Chairman*, The Peoples Gas Light & Coke Co., Chicago, Ill.

THURSDAY, SEPT. 30, 2:00 P.M.

Accounting Machines Committee—"Merchandise Accounting by Machines," G. F. TREXLER, *Chairman*, Utility Accountants and Tax Consultants, New York, N. Y.
Office Management Committee—"Wage Incentive Plans," J. J. NATALE, *Chairman*, Office Management Committee, Philadelphia Electric Co., Philadelphia, Pa.
Health Promotion Plans, DR. WILLIAM J. MCCONNELL, Ass't Medical Director, Metropolitan Life Insurance Co., New York, N. Y.
Customer Accounting Committee, W. E. SCOTT, *Chairman*, Boston Consolidated Gas Co., Boston, Mass.
(a) "Averaged Billing"
E. F. EMBREE, New Haven Gas Light Co., New Haven, Conn.
(b) "Customer History Records—Advantages"
F. C. REEL, Cincinnati Gas & Electric Co., Cincinnati, Ohio.
(c) "Customer History Records—Disadvantages"
G. I. SIMPSON, The Peoples Gas Light & Coke Co., Chicago, Ill.
Benediction, H. C. DAVIDSON, Consolidated Edison Co., of New York, New York, N. Y.

ACCOUNTING SECTION LUNCHEON CONFERENCES

WEDNESDAY, SEPT. 29, 12:30 P.M.

The following subjects will be discussed at the luncheon conferences to be held at the Cleveland Hotel:

Credits and Collections
Leader, John A. Williams
Customer Accounting
Leader, Edward J. Tucker
Customer Relations
Leader, J. Gordon Ross
General Accounting
Leader, Herbert A. Ehrmann

COMMERCIAL SECTION

TUESDAY, SEPT. 28, 2:00 P.M.

Address of Chairman, F. M. BANKS, Southern California Gas Co., Los Angeles, Calif.
Report of Nominating Committee, CHAS. E. BENNETT, *Chairman*, Manufacturers Light & Heat Co., Pittsburgh, Pa.
Election of Officers.
The Road Back, HALL M. HENRY, Utility Management Corp., New York, N. Y.
Stimulating Dealers Activities
(Speaker to be announced.)

A. G. A. Day at the Cleveland Exposition

Sunday, September 26, the day before the annual convention gets under way in Cleveland, Ohio, has been proclaimed A. G. A. Day at the Great Lakes Exposition. Delegates to the convention who wish to see the Exposition in full operation will find it worthwhile to arrive in Cleveland a day early to take advantage of this opportunity. It will be their last chance as the Exposition closes on the following day.

The Association Home Planning Program, JOHN F. QUINLAN, A.G.A. Headquarters, New York, N. Y.

WEDNESDAY, SEPT. 29, 2:30 P.M.

Gas Appliance Salesmanship, GERALD E. STEDMAN, Kramer-Krasselt Co., Milwaukee, Wis.
Panel Discussion to be led by B. A. SEIPLE, Jersey Central Power & Light Co., Asbury Park, N. J.

THURSDAY, SEPT. 30, 2:00 P.M.

Gas Appliance Needs of the Industry, H. O. LOEBELL, Natural Gas Pipe Line Co. of America, Chicago, Ill.
The Certified Range Program, HUGH CUTHRELL, The Brooklyn Union Gas Co., Brooklyn, N. Y.
Showmanship in Business
(Speaker to be announced.)

INDUSTRIAL GAS SECTION

TUESDAY, SEPT. 28, 12:30 P.M.
Hotel Statler

THE INDUSTRIAL GAS CLUB LUNCHEON

Interdependence of Company and Department Managements in Conducting Industrial Gas Sales, F. X. METTENET, The Peoples Gas Light & Coke Co., Chicago, Ill.

TUESDAY, SEPT. 28, 2:00 P.M.

Address of Chairman—"Factors Contributing to Greater Industrial and Commercial Gas Sales," RALPH L. MANIER, Niagara Hudson Power Co., Syracuse, N. Y.
Election of Officers
What Industrial Gas Men Should Know about Steel, ROBERT G. GUTHRIE, *Chairman*, Ferrous Metals Committee, Chicago, Ill.
Industrial Department Management, ALBERT A. SCHUETZ, Milwaukee Gas Light Co., Milwaukee, Wis.
Modern Methods of Applying Gas in Large Power Boilers, L. S. REAGAN, *Vice-Chairman*, Steam Generation Committee, Tulsa, Okla.

WEDNESDAY, SEPT. 29, 2:00 P.M.

COMMERCIAL GAS AND EQUIPMENT FORUM

Unit Heater Applications in Commercial Establishments. Leader—OLIVER LLOYD MADDUX, Hamilton, Ontario. Five minute presentations by four selected speakers. Open Forum.
Evaluation of Gas Commercial Cooking. Leader—CHARLES E. LUCKE, JR., New York, N. Y. Five-minute presentations by four selected speakers. Open Forum.
Developing Dealer Cooperation in Hotel and Restaurant Appliance Sales. Leader—T. J. GALLAGHER, Chicago, Ill. Five minute presentations by four selected speakers. Open Forum.

THURSDAY, SEPT. 30, 2:00 P.M.

INDUSTRIAL GAS AND EQUIPMENT SYMPOSIUM

Liquid Heating with Immersion Gas. Leader—L. B. CROSSMAN, Boston, Mass. Five-minute presentations by four selected speakers. Open Forum.
Convection Heating with Gas. Leader—KARL EMMERLING, Cleveland, Ohio. Five-minute presentations by four selected speakers. Open Forum.
Wholesale Baking with Gas. Leader—LAWRENCE R. FOOTE, Rockford, Ill. Five minute presentations by four selected speakers. Open Forum.

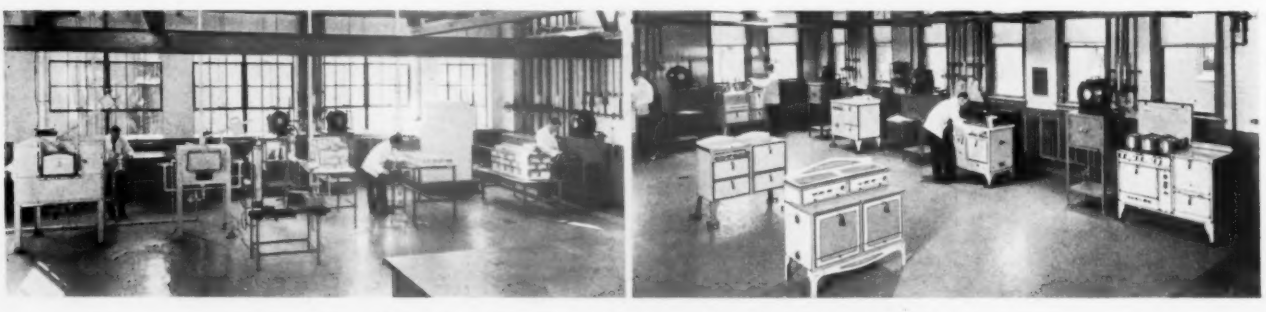
TECHNICAL SECTION

TUESDAY, SEPT. 28, 2:00 P.M.

Address of Chairman, M. I. MIX, The Peoples Gas Light & Coke Co., Chicago, Ill.
Report of Nominating Committee, F. A. LYDECKER, *Chairman*, Public Service Electric & Gas Co., Newark, N. J.
Report of Gas Production Committee, R. E. KRUGER, *Chairman*, Rochester Gas & Electric Corp., Rochester, N. Y.
Coordination of Gas Conditioning Research, O. S. HAGERMAN, Atlantic Seaboard Corporation, New York, N. Y.
Corrosion of Metals and Alloys by Flue Gases, LOUIS SHNIDMAN, Rochester Gas & Electric Corp., Rochester, N. Y.
Report of Distribution Committee, D. P. HARTSON, *Chairman*, Equitable Gas Co., Pittsburgh, Pa.

WEDNESDAY, SEPT. 29, 2:00 P.M.

Principles of Gas Scrubbing, PROF. C. C. FURNAS, Yale University, New Haven, Conn.
Polymerization—What It Means to the Gas Industry, F. E. FREY, Phillips Petroleum Co., Bartlesville, Okla. and J. S. CAREY, The W. M. Kellogg Co., New York, N. Y.



Two of the testing rooms at the A.G.A. Testing Laboratories in Cleveland

Problems of Regulator Freezing, M. A. HARDIE, JR., Montana Power Co., Butte, Mont.

THURSDAY, SEPT. 30, 2:00 P.M.

Report of Chemical Committee, J. F. ANTHES, *Chairman*, The Brooklyn Union Gas Co., Brooklyn, N. Y.

Corrosion of Metals in Soils as a Factor in the Selection of Pipe Materials, DR. SCOTT EWING, Research Associate, National Bureau of Standards, Washington D. C.

Experiences in Cincinnati and the Ohio Valley during the 1937 Flood, E. A. MUNYAN, Cincinnati Gas & Electric Co. Cincinnati, Ohio.

Employee Training Introduction—DR. MORRIS S. VITELES, Philadelphia Electric Co., Philadelphia, Pa.

Selecting and Training Applentice Linemen—A film with comments by L. G. WITMER, Philadelphia Electric Company.

A. G. A. E. M. Annual Meeting

The second annual meeting of the Association of Gas Appliance and Equipment Manufacturers will be held at the Statler Hotel, Cleveland, Ohio, Monday, September 27, 1937 at 10:00 A.M. W. T. Rasch, president of the association will preside at the meeting.

W. T. RASCH

THE PROGRAM

General Industry Meeting

Ballroom—9:30 A.M.

Call to Order.

Report of President and Secretary, by W. T. Rasch, President.

Report of Treasurer, by Donald McDonald, Treasurer.

Gas Industry's Participation in the New York World's Fair—1939, by Walter C. Beckjord, Vice President Columbia Gas and Electric Corporation, and member of Board of Directors of Gas Exhibits, Inc.

Report of Counsel, by George E. Frazer, Counsel.

Gas Industry Problems, by Herman Russell, President American Gas Association.

Report of Nominating Committee, by F. E. Sellman, Chairman.

Report of Divisional Chairmen.

Election of Officers for 1937-1938.

DIVISIONAL MEETINGS

All meetings will be held at Hotel Statler, Cleveland, Ohio, Monday, September 27, 1937.

Domestic Gas Range Division, Lattice Room, 12:30 Luncheon.

Gas Water Heater Division, Parlor F-G, 12:30 Luncheon.

Gas Space Heater Division, Tavern Room, 1:30 P.M.

Hotel, Restaurant and Commercial Gas Equipment Division, Parlor B, 4:30 P.M.

Industrial Gas Equipment Division, Parlor A, 2 P.M.

Gas Housheating & Air Conditioning Equipment Division, Parlor I, 1:30 P.M.
Gas Boiler Group, Parlor 1, 2 P.M.
Gas Furnace Group, Parlor 2—3 P.M.
Gas Conversion Burner Group, Parlor 3. 4 P.M.

Gas Cock Division, Parlor C, 2 P.M.

Thermostatic Controls & Accessories Div., Parlor E, 3 P.M.

Gas Meter and Regulator Division, Parlor L, 4 P.M.

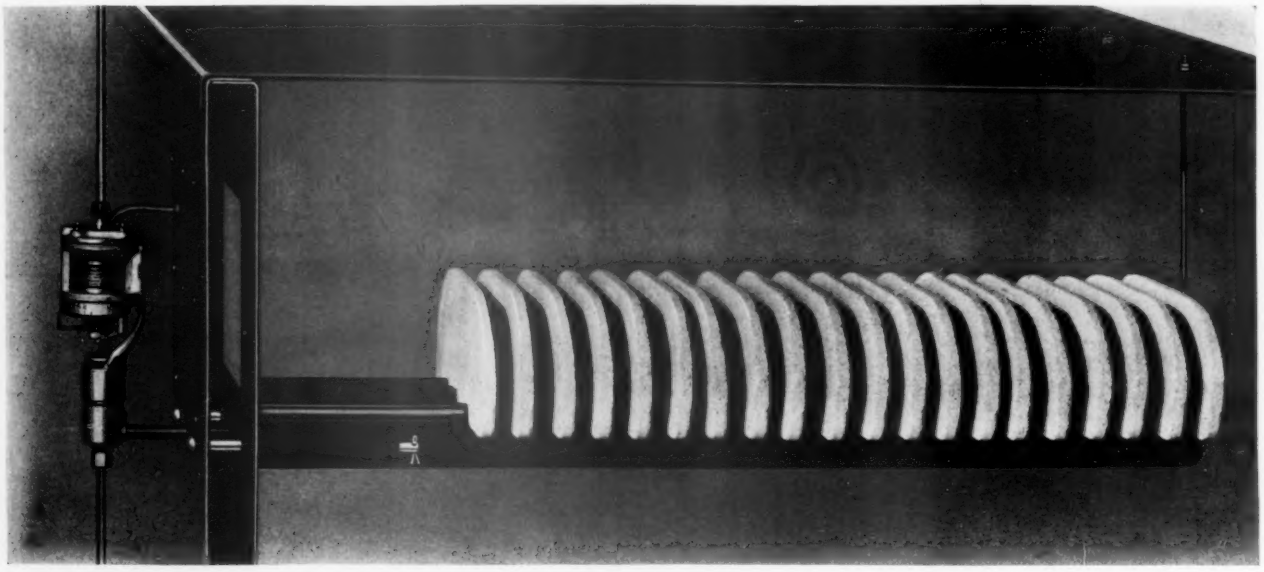
Office Equipment Division, Parlor K, 2 P.M.

The Gas Machinery Company
Cleveland, Ohio
Welcomes Delegates of
The American Gas Association
To
THE CLEVELAND CONVENTION

AUTOMATIC JUNE

HYDRO-METRIC HUMIDIFYING SYSTEMS

NEW IMPROVEMENTS INCREASE EFFICIENCY AMAZINGLY



Advanced Engineering Achieves Marvelous Capacity and Compactness

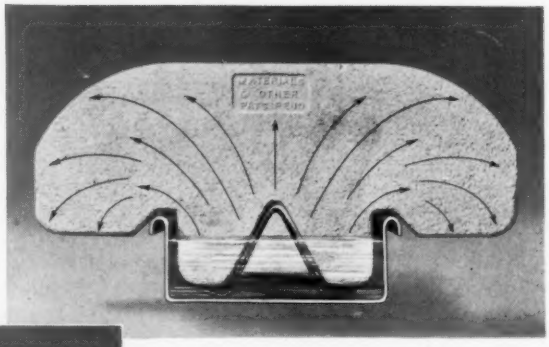
This new Automatic June Vapor Diffuser, with pan only 4" wide, has greater capacity than any open humidifier pan 4 feet wide of same length. In fact, to equal it the ordinary evaporating pan would have to be 5 feet wide.

This great capacity and compactness insures adequate humidifying capacity even under low bonnet temperatures of modern air conditioning furnaces, without restricting free air flow.

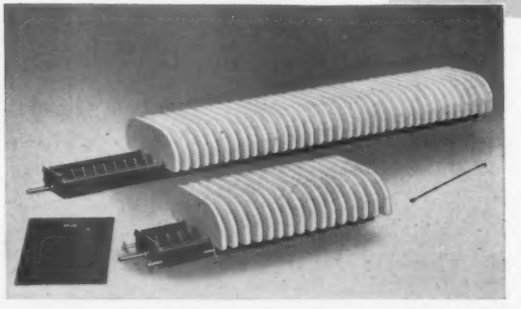
Write for New Literature

Monmouth Products Co.
217 East 131st Street Cleveland, Ohio

The great evaporating capacity, absolutely necessary for the low bonnet temperatures of modern heating, is limited and controlled so that indoor humidity during any weather—mild or severely cold—is adequate for health, but never so high that windows steam or condensation occurs on outside doors, on and in outside walls, even during coldest weather.



Automatic June humidifying systems are endorsed by all leading air conditioning engineers as outstandingly superior in their field. Automatic June at present either has been or is in process of being adopted as the standard humidifying system for all leading and higher class air conditioning furnaces.



Improved vapor diffusing plates, scientifically proportioned, wider, tapered, with deep overhang, give marvelously rapid absorption capacity. Each plate can lift over 2½ tons of water in one season—many times more than it is ever required to evaporate. Each plate can diffuse as much water vapor as 60 square inches of water surface in ordinary open pans.

Forty Years' Progress of Natural Gas in East Ohio

By
C. T. Henderson
East Ohio Gas Company

CLEVELAND, which is host this year to the American Gas Association's annual convention, is an interesting gas city in more ways than one.

For example, it is one of the oldest natural gas towns in the country in point of the time over which it has been on a natural gas basis—thirty-five years.

Cleveland, also, is the center of the country's greatest gas appliance production area. Above all, perhaps, the Association's appliance testing laboratories are located in Cleveland, partly because it is the heart of a big gas appliance industry, and partly because different gases are available for testing purposes.

Of prime interest, however, is the fact that Cleveland is not only the pioneer metropolitan natural gas city, but is the home, naturally enough, or the country's pioneer natural gas system, the East Ohio Gas Company.

This company's life, which began with the original East Ohio in 1893, contains the whole story of what has become the great and growing natural gas industry in Ohio, beginning with vicissitudes of engineering and market development which have altered greatly—and for the better—since that early day. It was all new, then.

Some of these earlier difficulties have been entirely ironed out. One of these is the matter of gas acceptance, which was a mountainous obstacle in the first years of long distance natural gas transmission. The invention of the flexible, or sleeve type of coupling, allowing the use of plain-end pipe, came along almost at the same time as the East Ohio started to lay its first line across the Ohio River, while many other improvements were yet to be born of the experience which these early builders were just starting to create.

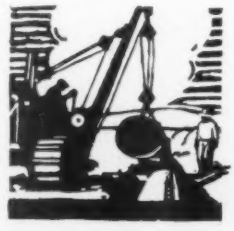
Many of the trials and tribulations of natural gas transmission and distribution at this early date are known now only by hearsay to the younger generation, and remembered only by the surviving old-timers. The trials of today are different, but maybe some day they will have only an historical interest, like the original ones.

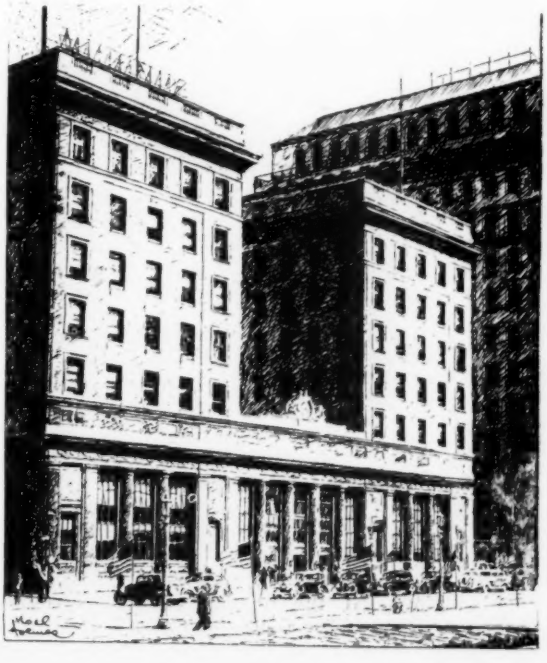
All these things make the history of the East Ohio almost a history of natural gas. From its start in 1898, when it laid a ten-inch line across the Ohio River, in order to find markets in Ohio cities for West Virginia gas which was plentiful in that gas state, the East Ohio grew as rapidly as its trunk lines could be increased in number and extended in length, until now it is a system of four 18- and 20-inch main lines carrying gas from West Virginia to sixty-three towns and cities in Ohio, and serving approximately 500,000 consumers.

In addition to the West Virginia gas, the East Ohio also derives a useful, but very much less dependable supply from Ohio fields, through a transmission system in that state which feeds gas into the main system, augmenting the West Virginia supply and mingling with it.

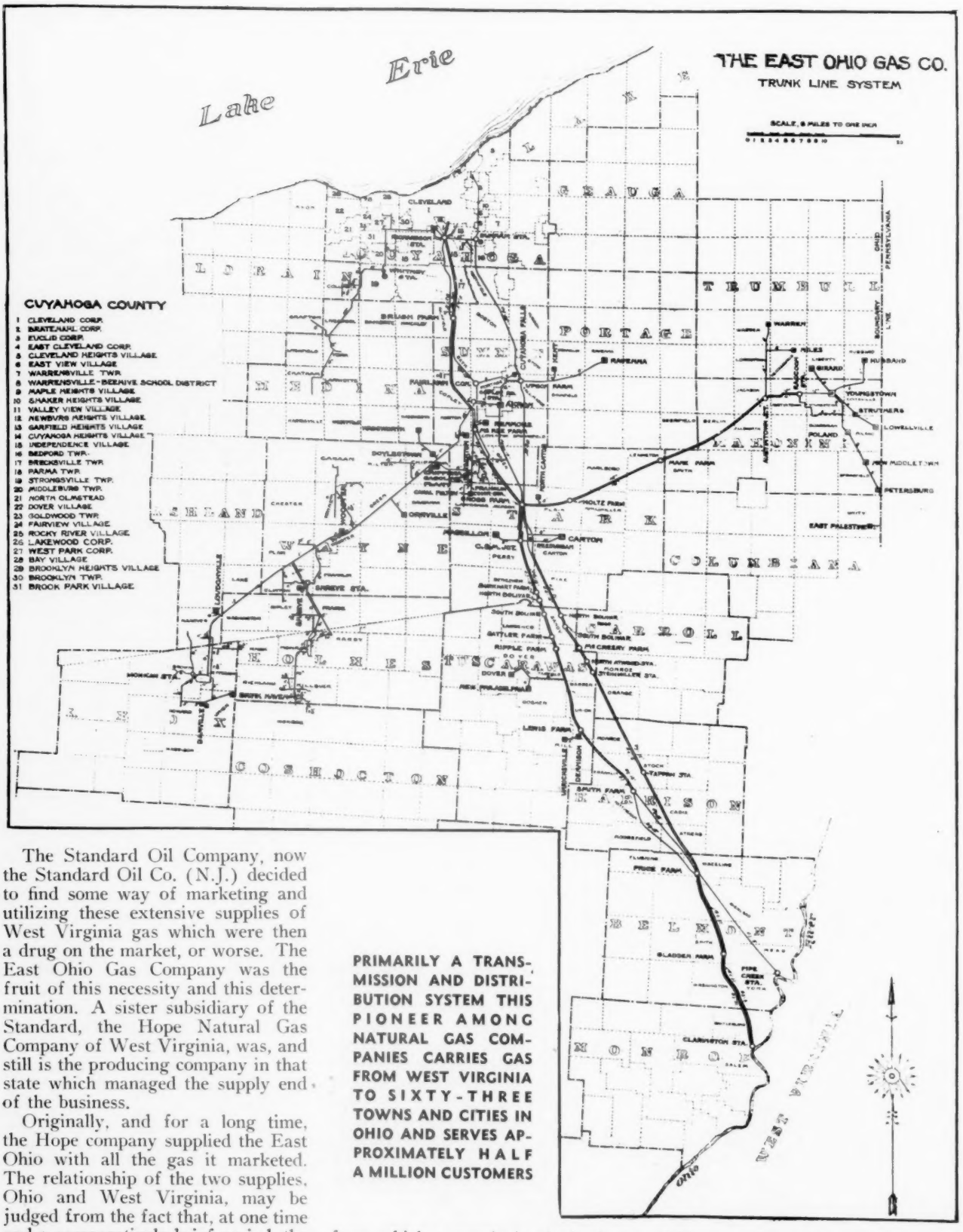
At the beginjning, the Ohio supply was out of the picture entirely. The East Ohio system had its inception in the vast natural gas reservoirs of West Virginia which were discovered in the rush for oil at a time when natural gas was generally regarded in oil production as a nuisance—as, at the time, it was, being heartily cursed by drillers, producers, and prospectors when they ran into it.

It was oil they wanted, not gas. Now, of course, the relation of the two is understood. A gasser is no longer a disappointment, and even when oil and gas are found in conjunction with each other, there are ways of taking care of that, too. Perhaps this change in the industry illustrates as nothing else could, how extremely vague and inconsiderable the amount of knowledge was which the pioneers in natural gas had to guide them at the start of this now great industry.





The Office Building on E. 6th Street, of the East Ohio Gas Company, Hosts to the Delegates and Guests at the Convention.



The Standard Oil Company, now the Standard Oil Co. (N.J.) decided to find some way of marketing and utilizing these extensive supplies of West Virginia gas which were then a drug on the market, or worse. The East Ohio Gas Company was the fruit of this necessity and this determination. A sister subsidiary of the Standard, the Hope Natural Gas Company of West Virginia, was, and still is the producing company in that state which managed the supply end of the business.

Originally, and for a long time, the Hope company supplied the East Ohio with all the gas it marketed. The relationship of the two supplies, Ohio and West Virginia, may be judged from the fact that, at one time and a comparatively brief period, the East Ohio secured about half of its supply from Ohio. The average today is probably something like three-fourths West Virginia and one-fourth Ohio. At the present time there are some 700 wells in Ohio from which a supply is obtained, as compared with over 3000 wells upon which the Hope company draws in West Virginia and which it owns, and approximately the same number from which it buys gas on contracts with independent owners. Ohio gas fields, or rather pools, are very much of an uncertainty where dependability for a system supply is concerned.

The Hope company is itself an interesting history and an interesting company in its own right. It has a field gathering and transmission sys-

"YOU COVER A WIDER RANGE AND WELD 15% TO 20% FASTER WITH THE NEW 'SHIELD-ARC SAE'—

"Set for welding thin sheets, this new Lincoln gives Slim the skill and fine touch of a modiste. And set wide open, the 'SAE' is a power house on wheels. With it, I can pour out the molten metal like a steel furnace.

"They tell me that the wider range and greater speed of this new welder are made possible by a combination of plus features. Make a note of these:

★ **"A SELF-PROTECTING MOTOR** enables you to use larger electrodes and weld at heavier loads continuously without danger of burnout.

★ **"INDEPENDENT EXCITATION** steadies the arc at all times. It's especially valuable at the low current values such as Slim needs.

★ **"DUAL *CONTINUOUS* CONTROL** gives you a wider selection of both voltage and current values and 'top' performances at every setting.

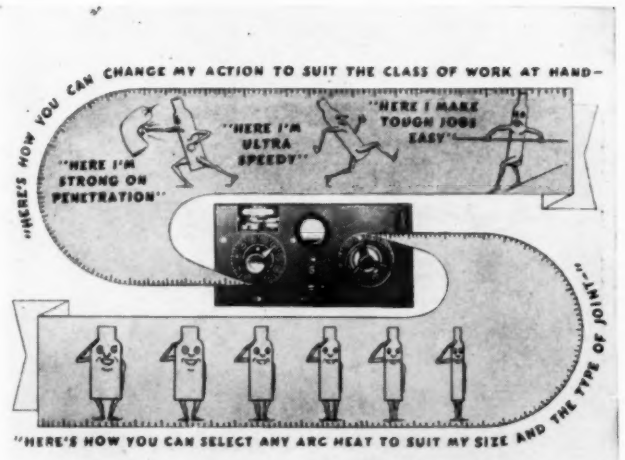
"In effect, you get two or three welders of different sizes when you buy one of the 'Shield-Arc SAE' machines. Yours for lower welding costs,

"FLEETWELD ROD"

—Spokesman for all progress-minded welding electrodes and emissary of

THE LINCOLN ELECTRIC COMPANY

Largest Manufacturers of Arc Welding Equipment in the World.


"HERE'S HOW YOU CAN CHANGE MY ACTION TO SUIT THE CLASS OF WORK AT HAND—
"HERE I'M STRONG ON PENETRATION"
"HERE I'M ULTRA SPEEDY"
"HERE I MAKE TOUGH JOBS EASY"
"HERE'S HOW YOU CAN SELECT ANY ARC HEAT TO SUIT MY SIZE AND THE TYPE OF JOINT—"

LINCOLN "SHIELD-ARC SAE"

THE WELDER WITH DUAL *CONTINUOUS* CONTROL

THE LINCOLN ELECTRIC COMPANY
Dept. AK-424 Cleveland, Ohio

My welding application is_____
How can the "SAE" do it faster?

Send a free copy of Bul. 412 giving details about the new "Shield-Arc SAE" welder.

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Company_____
Address_____
City_____ State_____

tem over 4000 miles, measured in length of pipe lines. The East Ohio's gathering and transmission lines total 1,355 miles in length, while its distribution system consists of approximately 5,000 miles of pipe, all buried below the frost line. It will be seen from this that the Hope is essentially a producing company, while the East Ohio is only incidentally so, being primarily a distribution and transmission system.

Going back to the building of this pioneer natural gas system, for it was the first development in natural gas that can properly be called a system, the engineering and construction difficulties which early beset the company's founders were no greater or more numerous than the marketing difficulties. Up until that time, gas, which was then all manufactured gas in the territory being opened up by the East Ohio, with minor and unimportant exceptions, was comparatively very expensive—a luxury. Many of the communities reached by the expanding East Ohio system had never known any kind of gas. Even in the larger cities its use was considerably restricted, nothing like what it is now even in manufactured gas districts.

House heating with gas was virtually an unexplored territory. Chimneys were not, and never had been, built with linings which are necessary where gas is burned in large quantities, due to the water vapor which is a by-product of consumption. The result was that chimneys were affected, and this gave rise to a series of what might almost be called superstitions regarding gas heat. For example, natural gas heat was supposed to "dry out" the furniture in a house so that it fell apart, whereas just the opposite of drying out was the truth. Above all, a whole new science of gas utilization had to be evolved. Those of us who are acquainted with what were called "appliances" for the burning of natural gas in the old days, well know what atrocities some of these things were. People just didn't know.

To some extent, inefficiency of natural gas appliances in use is not in step even today with the marvelous development of appliances in engineering and manufacture. But it was an almost zero of gas utilization acceptance and popular knowledge from which the early natural gas had to start in literally making natural gas markets. They had to overcome the twin obstacles of undeveloped appliances, and an undeveloped knowledge and acceptance of gas, especially natural gas, which introduced an entirely new motif in gas utilization.

Gradually, but only by dint of most persistent and courageous labors, new uses for natural gas, new and better methods of applying its heat, and an enthusiastic acceptance of gas as a godsend to a community fortunate enough to possess it, took the place of the ignorance, inexperience and inefficiency of using natural gas which constituted not the least formidable of its primitive days.

The distinguishing peculiarity of natural gas pioneering in this part of the gas industry in general which is called utilization, consists of this, that natural gas brought gas and gas service not only to communities and very large sections of population which had always been unfamiliar with gas, and hence had to be both converted and educated to its use, but by the nature of its business had to initiate and develop new uses for gas on a large scale. In the latter years of natural gas development, the problem became not only one of customer education, as always, but the still further improvement of appliances which had already basically developed along the right lines, and principles. Pioneer system as the East Ohio is, it can still be said that every natural company will be a pioneer to the next generation.

The problems and difficulties merely change in form.

The Cleveland Trencher Company

Extends to the Members of

THE AMERICAN GAS ASSOCIATION

A Hearty Welcome to Cleveland

for Your Convention

We hope you will find time to visit us while you are in town. Telephone us anytime during your visit, and we will arrange for your transportation to the plant. We will appreciate the opportunity of showing you the latest developments in trenching machines and giving you a demonstration of their performance.

THE CLEVELAND TRENCHER COMPANY

"Pioneers of the Small Trencher"

Manufacturers of:—Cleveland Baby Digger and Cleveland Pioneer Trenchers—Cleveland Tamper-Backfiller—Cleveland Trailers—Cleveland Trench Guards, etc.

20100 St. Clair Ave. Cleveland, Ohio Telephone KEnmore 4100

Congratulations ON ANOTHER RECORD-BREAKING CAMPAIGN

"Tenth Anniversary" Party BOOSTS GAS REFRIGERATION HOMES PAST 1,000,000 MARK

Surveying one of the giant cakes awarded to the twenty-four winning companies in this year's "Birthday Party" campaign: F. E. Sellman, vice-president, Servel, Inc.; J. W. West, Jr., commercial secretary, A. G. A.; Hall M. Henry, assistant to vice-president, The Utility Management Corp.; C. W. Berghorn, executive secretary, A. G. A. E. M.; H. S. Boyle, sales promotion manager, Servel, Inc.

Each of these mammoth fruit cakes weighed 150 pounds. This was the largest batch of birthday cakes ever made. They were baked in Schrafft's New York ovens and were only made possible through use of traveling gas ovens.

WELL, you people were the life of the party. And what a party it was! Other gas refrigeration campaigns have been great. But this year's "Tenth Anniversary" celebration topped them all.

Because of your energy and cooperation, our "Birthday Party" was a huge success from two standpoints: First, it resulted in a record number of actual installations. Second, it stimulated public interest to an unprecedented degree. That interest will carry on through future months . . . will give you a chance to do more refrigeration business this fall and winter than you've ever done before.

There's not much more for your committee to report. Those great whopping cakes have been shipped by plane to the twenty-four winning companies and are already being eaten, no doubt. Individual cash awards have been mailed. In all, there were approximately 2000 awards and we wish there could have been more. All we can say now is—Congratulations . . . and thanks.

REFRIGERATION COMMITTEE
OF THE
AMERICAN GAS ASSOCIATION AND THE A. G. A. E. M.

HALL M. HENRY, *Chairman*

Henry Dropp B. H. Gardner A. G. Schroeder John W. West, Jr.
Clyde Potter Paul J. Naschold B. O. Brown C. W. Berghorn

"TENTH ANNIVERSARY OF GAS REFRIGERATION" CAMPAIGN

THE *Smilin' Thru*

CAMPAIGN

Featuring

ROPER

GAS RANGES

is a COMPLETE CAMPAIGN . . .

Ready for Your Use!

All These SALES HELPS Offered

WRITE US FOR DETAILS

Complete Advertising and Sales Promotion Helps and Service yours for the asking . . . Let us show you

Tie in with the ROPER National Advertising Program

ROPER RANGES ARE IDEAL FOR USE WITH ANY TYPE OF GAS, INCLUDING BOTTLED GAS

GEO. D. ROPER CORP.

GENERAL OFFICES AND PLANT: ROCKFORD, ILL.

WAREHOUSES:

San Francisco, Los Angeles, Dallas, Kansas City, Chicago, Washington, Atlanta, Cleveland, Newark, Philadelphia

Pacific Coast Gas Association Elects New Officers at Seattle

The 44th Annual Convention of the Pacific Coast Gas Association was held at Seattle, Wash., August 17-19. It was an outstanding success and the registration reached nearly 400.

H. L. FARRAR
Vice President

James M. Pollard, retiring president of the Association, welcomed the delegates. Norman R. McKee, vice-president of the Southern Counties Gas Company, was elected President of the Association for the coming year. H. L. Farrar, president of Coast Counties Gas & Electric Co. and Natural Gas Corp., was elected Vice-President, and D. G. Martin, general auditor of Pacific Gas & Elec. Co., Treasurer.

C. R. Graham of James Graham Mfg. Co., Newark, Calif., was elected chairman of the Manufacturers Section.

(Photos McKee, Farrar, Graham, Johnson).

Mr. McKee following his election appointed the following General Section Chairmen:

Technical: A. B. Allyne, Southern Counties Gas Co., Los Angeles.

Sales and Advertising: Norbert O. Fratt, Seattle Gas Co.

Accounting: H. E. Davidson, Southern California Gas Co., Los Angeles.

Educational: A. J. Noia, Pacific Gas and Electric Co., San Francisco.

Women's Committee: Doris Allen, Southern California Gas Co.

The Pacific Coast Gas Industry rededicated itself at Seattle to work together as a unit for the advancement of the gas business through research, education and intensified sales promotion. So strongly did this spirit prevade the meeting that the new President, Mr. McKee said, upon formally taking office, that no slogan for 1938 would be quite so appropriate as "A United Front".

JAMES F. POLLARD
Retiring President

CLIFFORD JOHNSTONE
Managing Director, Pacific Coast Gas Association

NORMAN R. McKEE
President

What took place at the Convention is a story of the masterful leadership of President Pollard, of the careful arrangement of Convention Chairman, Tom Roach, and of the devoted attention to detail of all members of his Committee.

Clifford Johnstone, Managing Director of the P.C.G.A. handled the details of the meeting in his usual effective way. The entertainment features were fully enjoyed and many outstanding papers were presented.

C. R. GRAHAM
Chairman Manufacturers' Section

GLOVER-WEST

Vertical Retort System

gives

Maximum Production in Minimum Ground Area

•

Uniform Production

The Quantity per ton of coal and quality of gas are constant.

Waste Heat Recovery

Sensible Heat of outgoing coke absorbed within the bench. No Quenching necessary.

Range of Flexibility

Can be operated from 50% to Full Capacity

No Naphthalene Trouble

With this equipment Naphthalene Scrubbers are not necessary.

Operation and Maintenance

Correct design and rugged construction obviate the need of much costly auxiliary equipment.

More than 400 plants in 24 countries now in operation give evidence of the economic advantages of the Glover-West System.

West Gas Improvement Company
Engineers—Builders
424 Madison Ave. New York, N. Y.

APPALACHIAN COALS INC.
STABILITY · QUALITY · SERVICE
ACI
W.VA VA KY TENN

For by-product, producer, retort or water gas . . . for coke of required structure and analysis . . . for high gas yield and low holder cost, **ACI Quality Coals** are the choice of plant operators in more than 20 states. These gas coals have the physical and chemical characteristics best adapted to coke production and gas manufacture.

The ACI mines in eastern Kentucky, eastern Tennessee, southwestern Virginia and southern West Virginia offer particular grades and sizes which have proven by test and experience to be capable of meeting every production requirement for high volatile bituminous coal.

Appalachian Service, which has paved the way to cost reduction in many gas plants, is offered without obligation. Specify **ACI Quality Coals** . . . get our consulting engineering service . . . get your money's worth.

Write for list of producing companies; lists of the authorized agents for **ACI Quality Coals.**

Appalachian Coals, Inc.
TRANSPORTATION BUILDING · CINCINNATI, OHIO

Production of Coal Gas, Blue Gas and Carburetted Water Gas Simultaneously In One Plant

by

John Kirkhope

British Columbia Electric Power and Gas Co. Ltd.

A PAPER entitled "Adaptability of Chamber Ovens to the 'Triple Process' of Manufacturing Coal Gas, Blue Gas and carburetted water gas simultaneously" was read at the joint meeting of the Canadian Gas Association and the Pacific Coast Gas Association held in Vancouver in July, 1936.* The "Triple Process" has proved so successful at Vancouver, a short description of our further experiences might prove of interest to gas engineers.

The paper referred to above enumerated the reasons for the introduction of the "Triple Process" and described the apparatus used for the manufacture of the three gases in our oven plant. The main reasons for a departure from the normal method of gas manufacture were—

A. A coke stock which was rapidly increasing due to intensive competition from cheap sawdust, wood, coal and oil.

B. The manufacture of carburetted water gas in a separate plant was expensive.

The "Triple Process" now enables us to meet our gas load and at the same time to control coke production, without the necessity of operating a separate carburetted water gas plant, which is the method adopted by most manufactured gas undertakings for balancing gas and coke requirements.

Our plant—we have only one carbonizing plant in operation—consists of 36 4-ton intermittent Vertical Chamber ovens equipped for steaming of the coke charges and rated at 4½ million cubic feet of 465 Btu. gas per 24 hours.

Adoption of the "Triple Process" involved equipping the ovens with means for introduction of oil or other liquid hydrocarbon to the top of the coke charges. In our plant, oil is fed by gravity from an overhead storage tank through regulating cocks, funnels and U-sealed delivery lines to nipples in the charging lids at the top of the ovens.

At the completion of the normal carbonizing and steaming periods of the charging cycle (the first two stages of the "Triple Process") oiling is commenced while steaming is continued — the blue water gas formed in the lower part of the coke charge sweeping the oil gases from the upper part of the oven.

In the first stage of the "Triple Process" the coal gas generated during the first 8-10 hours after charging the oven passes off through offtakes at top and bottom of the oven. In the second stage, blue water gas is formed by the introduction of superheated steam at the base of the oven (the bottom gas offtake having been closed), the water gas generated by the passage of steam through the hot coke charge leaving the oven through the top gas offtake. In the third stage steaming is continued and oiling is carried out as described above, the carburetted water gas leaving the oven by means of the top gas offtake.

The oiling period and the quantity of oil used (determined by the size of orifices situated in the delivery lines) are regulated to allow of the oil being turned off the oven at least two hours before discharge of the coke. During this latter period steaming is continued to sweep out the last traces of the oil gas. The coal charging, oiling and steaming periods adopted depend on the quantity of gas required from the plant together with the amount of coke required for the market.

Such, briefly, is a description of our method of manufacturing the three gases, coal gas, blue water gas and carburetted water gas, in the one carbonizing unit.

The effect upon plant operation of the use of oil can be gathered from Figure 1, which is compiled from average figures obtained in actual operation, and indicates daily gas production obtained from various throughputs of coal before and after the introduction of the "Triple Process." In the case of the results obtained without oiling, i.e., making coal and blue gas only, the points lie fairly close to the curve "A." When the "Triple Process" is in use, the results obtained when using twenty to twenty-five gallons of oil per ton of coal carbonized are shown plotted, and fall on, or close to curve "B." (Different curves are obtained for different oil consumptions.)

From the chart the effect of the oiling, or third stage in the "Triple Process" can be readily seen. Assume that a daily production of four and one-half million cubic feet is required from the oven plant. Without the oiling process, a coal throughput of approximately 230 tons would be required—the coke yield would be approximately 165 tons per day. Using the "Triple Process" with twenty to twenty-five gallons of oil

Presented before the Technical Section of the Pacific Coast Gas Association, Seattle, Wash., Aug. 17-19, 1937.

** Proceedings C.G.A., 1936. P. 38.*

per ton of coal, approximately 170 tons of coal would be required; the coke yield in this case would be around 112 tons, i.e., a reduction of 53 tons in the coke production per day.

The effect of the third stage on the coke production from the oven plant is more clearly seen from Figure 2, on which "coke yield per ton of coal" is plotted against "gas production per ton of coal."

Curve "A" represents the weight of coke discharged from the ovens per ton of coal carbonized, while "B" represents the weight of coke available for sale, after deducting fuel charged to the producer plant.

Thus, without the use of oil, the make of gas per ton of coal is 18,000 cu.ft., and the yield of coke for sale, 975 lbs., while if the make of gas is 30,000 cu.ft. per ton of coal, the coke yield for sale drops to 410 lbs.

A considerable improvement has taken place in the coke market in the past few months and, to meet the increased demand, oiling has of necessity been reduced. The percentage of carburetted water gas made in the year 1935-36 was 25.4, whereas in the year 1936-37 it was 17.9.

Incidentally, the effect of reduced oiling on the efficiency of the oiling process is of interest. Whereas in the year 1935-36 the oil consumption was of the order of 2.8 gallons per 1,000 cu.ft. of 465 Btu. carburetted water gas, in 1936-37 this was reduced to 2.3, and we are realizing still better operation today, and this in spite of using a diesel-fuel oil mixture in place of the straight diesel oil used in 1935-36. An explanation is found in the fact that the smaller stream of oil is more efficiently gasified on contact with the hot coke charge, little, if any, penetration into the coke, with resultant over-cracking, taking place. It is appreciated that still higher efficiencies may be obtained were the oil introduced into the oven in an atomized condition, but to do this satisfactorily considerable alteration of oven structure would be necessary and this was considered inadvisable on the present oven installation.

A slight increase in the yield of oil tar per gallon of oil used was noticed on reducing the amount of carburetted water gas made. This rose from 0.13 gallons of oil tar per gallon of oil in 1935-36 to 0.16 gallons in 1936-37.

The winter of 1936-37 was unusually severe in Vancouver. Lower temperatures have been experienced in the past, but consistent cold weather was spread over a period much longer than is customary. The load carried by the carbonizing plant, as a result, was correspondingly heavier and although peak outputs in the past have exceeded those experienced by us last winter, the output for the period constituted a record. The heaviest month was January, 1937, when the amount of gas made was over 150 million cu.ft., corresponding to an average daily make of five million cu.ft. The rated capacity of the plant on an "all coal gas" basis being 4½ million cu.ft., under normal circumstances the carburetted water gas plant would have been called upon to supply the balance.

When compared with the cost of making carburetted water gas by the "Triple Process," the operation of the standby carburetted water gas plant at Vancouver is expensive. It is situated on a different site from that occupied by the oven plant and consequently all fuel has to be transported and a separate operating staff is required. In addition there are the usual standby losses when the plant is heating up, standing ready and shutting down. Clinkering losses and loss of carbon due to air-blasting are, of course, usual but help to boost still further the already high costs of operating the Vancouver carburetted water gas plant.

With the use of the "Triple Process" last winter's load was met entirely by the carbonizing plant. By increasing the quantity of carburetted water gas made during the third stage of the "Triple Process" operation of the carburetted water gas plant was avoided, coke was conserved and operating costs reduced. It is estimated that in the month of January alone over 200 tons more coke was made available for sale by the use of the "Triple Process." The rated capacity of the plant was exceeded almost consistently throughout the month, and the coal throughput was kept steady, fluctuation in load being taken up by the carburetted water gas.

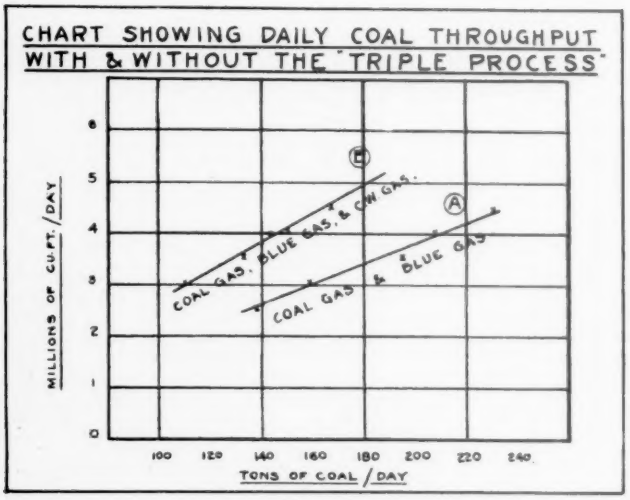


Figure 1

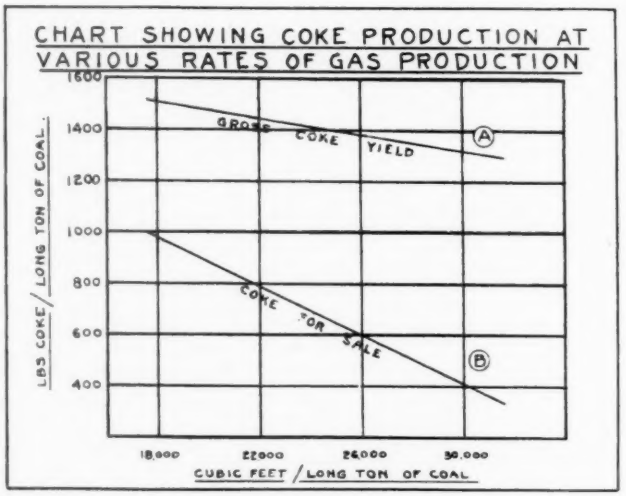
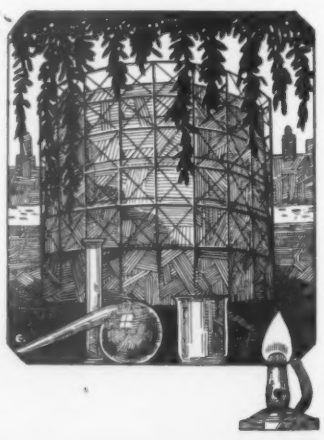
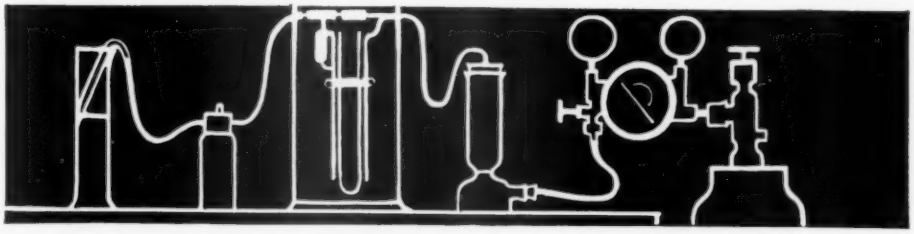


Figure 2



LABORATORY TESTED



TO compare Lavino "Activated" Oxide with a representative gas purifying material (designated as "Oxide B"), a reputable independent consulting chemist, Mr. J. Edward Brewer of Brewer and Gardner conducted thorough tests. Summary of the results obtained are given below:

KUNBERGER FOULING TEST

	LAVINO "ACTIVATED" OXIDE		OXIDE "B"	
	As Received	Dry Basis	As Received	Dry Basis
1st Fouling	37.2	40.5	15.4	29.6
2nd Fouling	39.5	43.0	14.0	26.9
3rd Fouling	43.0	46.8	14.4	27.6
4th Fouling	40.5	44.0	14.8	28.4
Total	160.2	174.3	58.6	112.5
Average	40.1	43.6	14.7	28.1

The procedure used is fully described in the December, 1934 issue of the AMERICAN GAS JOURNAL.

ACTIVITY TEST

In test for *Activity* these comparative results were obtained:

LAVINO "ACTIVATED" OXIDE:

Sample purified 89.74 cu. ft. of gas.
Duration of test, 9 hrs., 56 min.
H_2S in gas, 390 grains per 100 cu. ft.

OXIDE "B"

Sample purified 42.7 cu. ft. of gas.
Duration of test, 4 hrs., 45 min.
H_2S in gas, 420 grains per 100 cu. ft.

PROOF

we can cut your Purifying Costs!

What does this test prove? Simply this: Lavino "Activated" Oxide, no higher in initial cost, WILL CUT YOUR GAS PURIFYING COSTS BY REMOVING A GREATER AMOUNT OF H_2S AND BY PURIFYING A GREATER NUMBER OF CUBIC FEET OF GAS PER POUND OF OXIDE!

An attractive folder, giving full details and conditions of these tests, is yours without obligation. Send for it—and, for field data too, ask to have a representative call. No obligation, whatsoever.

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☐ Without obligation, send me my copy of your folder, "Tested".

☐ Arm your representative with test and field data and send him in to see me.

Name _____

Title _____

Company _____

Address _____

The Modern Proving Room

By
F. L. Fairchild
Vice President, Sprague Meter Company

General view of Sprague Meter Company's air conditioned proving room.

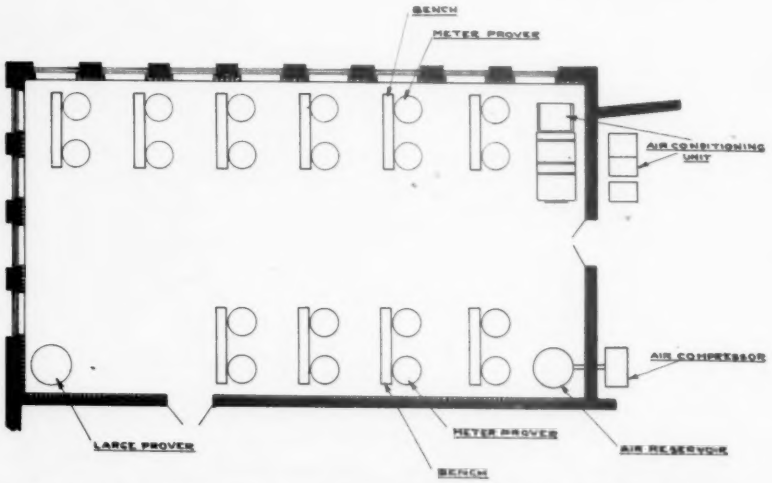
THE International Bureau of Weights and Measures near Paris have preserved in their vaults two lines on a metal bar, the distance which is known as a metre. A very accurate copy of this bar is deposited in the United States Bureau of Standards in Washington, D. C. and since the length of this metal bar changes slightly with the temperature the distance is measured at the temperature of melting ice. Here we have a legal standard which can be referred to at any time should there be the slightest doubt as to the accuracy of existing standards of this linear unit of measure.

So with gas meters there should be an existing standard whereby meters may be tested from time to time under identically the same conditions. One of the most important factors of this condition is temperature control and while the temperature of proving rooms has always been closely watched it could not be consistently and fully controlled until the science of air conditioning made its appearance.

All practical meter men are familiar with the accepted practice of holding the working temperature of their proving rooms between 60 and 90 degrees; while this 30 degrees difference in temperature gives considerable leeway it would be a far greater step towards accuracy if it could be controlled within closer limits—say 75 degrees maintaining a humidity of about 45 per cent for comfortable working conditions. Such a moderate degree of humidity is generally recognized as being very necessary for the most healthful conditions.

The Sprague Meter Company has just recently built a new air conditioned proving room which is the ultimate to date in equipment.

This new room is 58 ft. long, 34 ft. wide and 13½ ft. high. It is fully air conditioned for 75 degrees Fahrenheit temperature and 45 per cent relative humidity.



Floor plan of proving room shows location of air conditioning unit with relation to provers and benches.

The windows in the proving room are constructed of hollow glass blocks with a dead chamber between to eliminate condensation forming on them and to afford maximum insulation. These glass blocks are the latest type—translucent but not transparent. They allow the light to enter but still afford privacy and prevent the direct rays of the sun from striking the instruments.

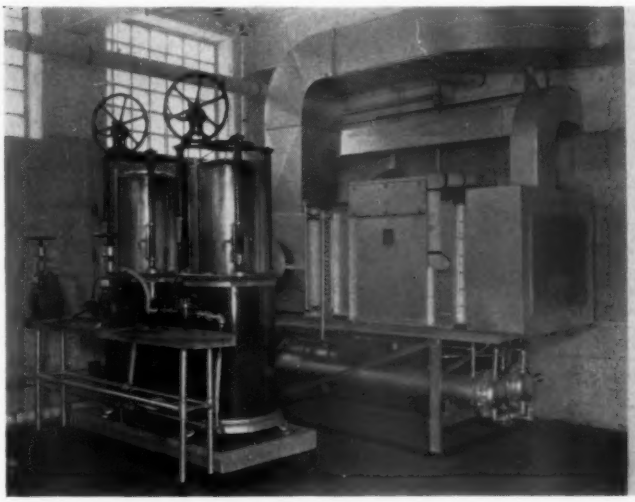
The basic floor of the proving room is concrete over which is placed 2 inches of cork set in asphalt, over this is laid a 1" pine sub-floor on top of which is a 1" maple floor for the comfort of the men standing on it. The walls are 12 inch brick and both the walls and ceiling are insulated with 2 inch cork.

The air conditioning system in the meter proving room at Sprague Meter Company is very novel and interesting in that all of the functions for year round conditioning are controlled separately or simultaneously from the same assembly without the use of by-pass ducts or any form of reheat. Interesting also is the fact that a gas-fired boiler is used the year round. The system is called the KATHABAR.

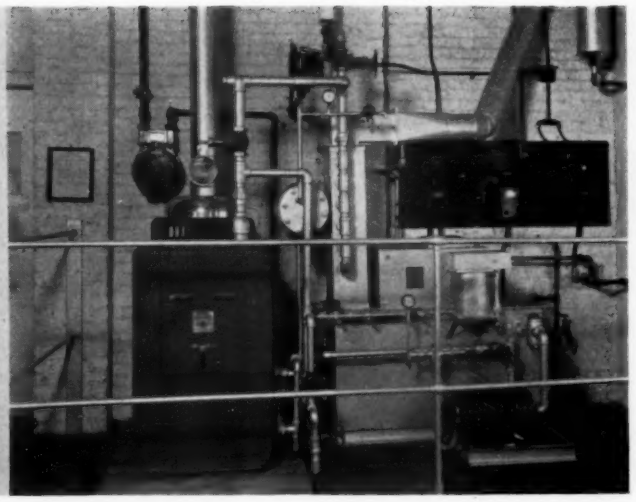
The assembly for air treatment consists of a finned coil utilizing steam for winter heating, a lithium chloride contactor for humidifying and dehumidifying, a finned coil utilizing cold city water for summer cooling. Included also are a mixing chamber for fresh air and recirculated air, a filter, and a fan. This assembly is located in the meter room proper.

No description of the heating and cooling coils is necessary, but the manner of tie-in with the lithium chloride part of the system may bear a brief explanation.

The essential part of the system



Close up of air conditioning unit which includes contactors for humidifying and dehumidifying, finned coils, mixing chamber, filler and fan.



The gas boiler and concentrator provides steam for summer and winter use.

so far as prime interest is concerned centers on the cycle for humidity control. This cycle incorporates the use of an aqueous solution of lithium chloride, which in contacting air will either absorb water from, or add water to the air depending on the vapor pressure difference between the lithium chloride solution and the air.

In other words if the moisture content of the air is high and the lithium chloride solution is strong, moisture will be taken up by the lithium chloride and the humidity of the air will be lowered. Conversely if the air is dry and the lithium chloride solution is weak, the latter will give up moisture and the air will gain in humidity. By proper regulation of the strength of the lithium chloride solution it can thus be made to act as a balance wheel for the humidity of the air coming in contact with it.

The contacting medium as included in the air conditioning assembly is a wetted surface of 36 frames in depth, wound with cord. A constant flow of solution travels down the cord surfaces coming in contact with the horizontal air flow. If dehumidification is required as called for by a humidistat set slightly higher than desired room conditions, a strong solution of low vapor pressure is automatically supplied to absorb water. The supply of a strong solution is accomplished by the application of steam from a gas-fired boiler to the solution concentrator. The Janitrol Gas boiler for supplying this steam and the concentrator are located outside the meter proving room.

The concentrator assembly consists of a sump, a fan and filter assembly and a steam heat exchanger. If dehumidification is required, the humidistat operates a valve which admits steam to the heat exchanger over which lithium chloride is trickling, and simultaneously a small fan circulates air in contact with the hot solution. The solution gives up part of its water to the air through evaporation and the moisture laden air is exhausted to the flue. The solution now has been strengthened and returns to the sump. From the sump a pump circulates the strong solution through a cooling surface to the air contactor.

As soon as the humidstat is satisfied the steam valve closes and the concentrator fan stops — but the flow of solution in contact with the air to be treated remains constant. If, on the other hand, humidification is required a second humidstat, set slightly below desired room conditions, opens a water valve to the lithium chloride solution sump, diluting the solution so that it will give up rather than absorb moisture in the air contactor—thus humidifying instead of dehumidifying.

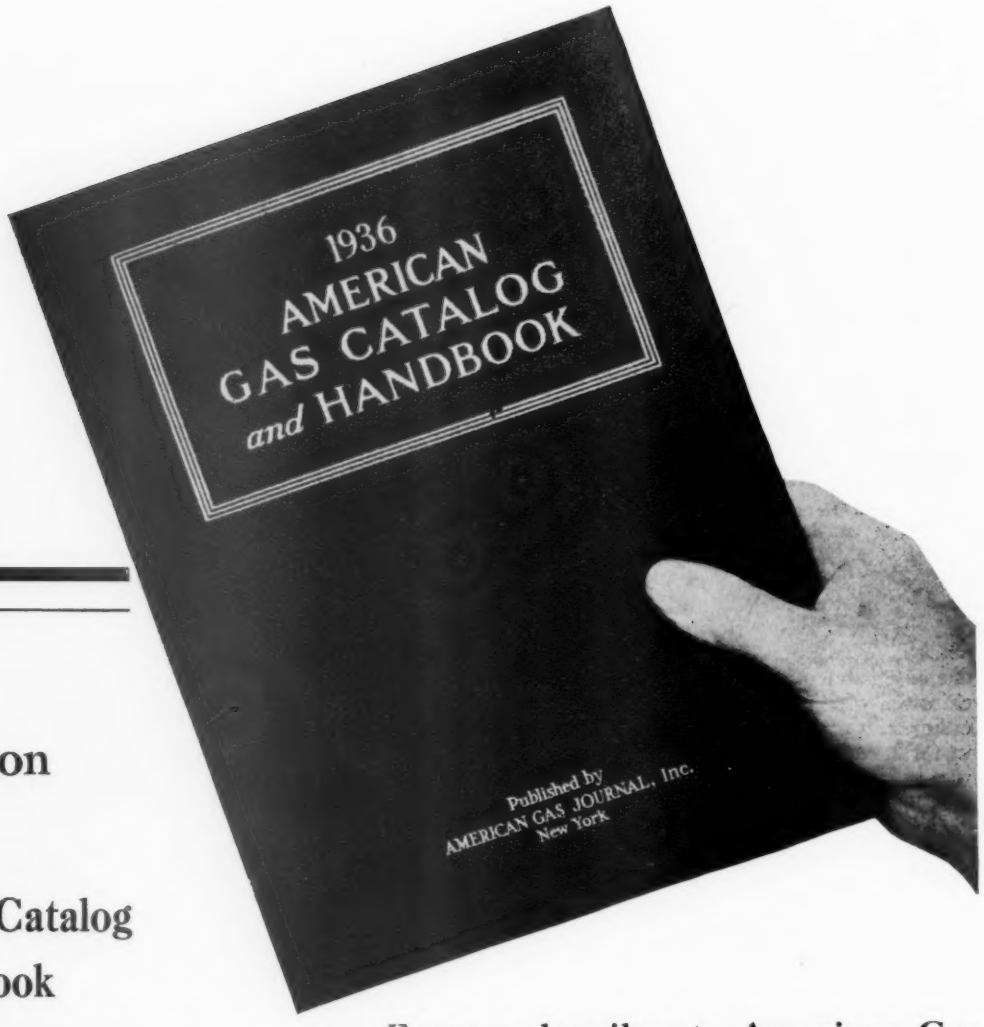
The controls in addition to the two humidstats consist of two thermostats —one set slightly higher than desired room conditions and controlling a cold water valve to the water coil, and the other set slightly lower than desired room conditions and controlling a steam valve to the steam coil. Thus heating or cooling may be obtained as required.

With the controls as outlined for heating and cooling, and the flexibility of the lithium chloride cycle, a remarkably close control of conditions is possible. Furthermore, as each function is under individual control, automatic shift over to any particular condition desired within the range of the equipment is possible. As an example, from a maintained condition of 75° temperature and 45% humidity, the setting was made and maintained at 72° temperature and 45% humidity. This new temperature condition was reached by the cold water coils and the dehumidification by the lithium chloride contactor without any bypass or reheat.

The use of steam for summer has been explained and is apparent for winter. The gas boiler is tied in with the system to take care of both requirements.

(Continued on page 108)

Another view of the proving room shows the overhead air ducts.



The 1937 Edition

of the

American Gas Catalog and Handbook

will be issued in December

The data pages in the 1936 Edition will be revised and a large number of new charts and tables will be added.

Its data pages will contain material of great reference value to every man responsible for the operation of every department of the Gas Industry.

Every subscriber to American Gas Journal automatically receives his copy of the Handbook on publication.

Manufacturers of equipment and appliances who advertise in the Handbook, keep their products constantly before the men who buy and recommend every item used in the production, distribution and utilization of gas.

The Old Stove Round-up

Oklahoma Natural Gas Company and Dealers Join Forces to Mutual Benefit

By

American Gas Journal Correspondent

SUCCESSFULLY proving the practicability of establishing a buying wave of lasting effect through co-operative effort, the Oklahoma Natural Gas Company, with main offices in Tulsa, Oklahoma, recently brought to a close a far-reaching promotional campaign. "THE OLD STOVE ROUND-UP," with advertising built around the old Western cattle round-up idea, brought enthusiastic acclaim from both the dealers involved and the district managers. According to H. Vinton Potter, merchandise sales manager who directed the campaign, final records show the quota set for this six weeks' period to have been surpassed by 519 sales and a gain of 167% over the same period in 1936, aggregating in total sales, more than $228,000. Last year during the same six weeks, 1,479 ranges were sold. We increased our quotas about 35% this year, bringing the total quota to 2,026 units. Our actual sales amounted to 2,545 units, 1,066 more sales than were made during the same period last year."

H. Vinton Potter, merchandise sales manager who directed the Old Stove Round-Up which enlisted the whole hearted support of dealers in sales promotion.

Three points were definitely set out as the aim of promotion incident to the "Old Stove-Round-Up." They were: (1) To make people dissatisfied with their old cooking equipment. (2) To make customers conscious of new, more convenient ranges. (3) To give a merchandising pick-up to this particular appliance, capable of carrying the twelve-month quota, with possibility of exceeding it.

The program was designed to show dealers that a co-operative effort is far more productive of results and profit and in starting a buying trend than any individual attempts might be.

Space available does not permit giving details of all the activities of this comprehensive and successful campaign. Some of the high spots are however brought to the front and illustrated.—Ed.

The initial selling of dealers on the idea was placed in the hands of the district managers, after plans were formulated and booklets made up describing the entire program. Dealer meetings were held in each of the eight districts. Participating dealers and their salesmen were asked to come to these meetings and the entire program was presented by the local sales manager, assisted by the Oklahoma Natural sales promotion manager, John Warden. The idea that through co-operation extra results would be obtained was carefully sold.

Following these dealer meetings came employee conferences. At the conferences two main points were emphasized—the need for employee load-building consciousness, and the fact that employee co-operation in turning in prospects and talking up the Old Stove Round-Up could improve dealer sales.

Besides initial instructions, regular weekly letters of instructions, reports on progress, and well-put encouragement were included in material from the main office.

The tentative plan was to obtain a definite allowance policy from dealers, according to their individual situations. The final plan was one of strict dealer co-operation with not too many suggestions as to how the dealer should operate his business. This was the first attempt of Oklahoma Natural Gas Company to enlist the whole-hearted support of dealers, so great care was exercised to prove its contention that concerted effort would profit the dealer most.

Disposition of ranges taken in during this time was subject to the dealer's discretion. He relegated them, according to condition, to the used appliances department of his business, the second-hand dealer, or the junk buyer.

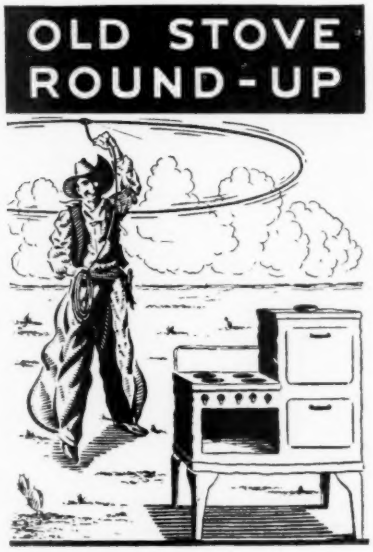
Plain old "Ballyhoo" was employed at the beginning of this program to impress the existence of the "round-up" on the public. Parades were announced through newspapers, and just before the march, aerial bombs were set off near the business districts of the cities. Immediately preceding the firing of the bombs, local radio stations and newspapers were contacted so that people calling in would be told that their merchants were sponsoring an "Old Stove Round-Up."

The Western Round-up motif was carried out in the parades in combination with automobiles of ancient vintage, covered wagons, and a comparison of old-out-moded stoves with shining new equipment. People taking part affected ten-gallon hats and other paraphernalia associated with the old West. The order of parades was somewhat as follows:

A squad of motorcycle police; a cowboy band, on foot; a company truck loaded with old worn-out stoves, followed by several dealer trucks carrying their own lines of gas ranges. Some novelty feature centered the parade, such as a worn-out Ford with a placard proclaiming —You wouldn't drive an old car. Then why use an antiquated gas range? Mounted Troops of America, an organization similar to Boy

Example of poster used for window decoration. The rider on his Bucking Broncho carries out the Western Round-Up motif.

Youthful riders who took part in the Tulsa street parade inaugurating the Old Stove Round-Up.



Single column mat furnished participating dealers to tie in their advertising with the Round-Up campaign.

and Girl Scouts and very popular through this section, made a very picturesque addition to the parades. Then came more trucks loaded with stoves, with a sound truck bringing up the rear.

These sound trucks, hired at small expense to the company, carried all the insignia of the campaign prominently displayed, and made, between musical renditions, such announcements as:

"Is your stove as Modern as the car you drive?"

"Don't go through another year with a worn out stove. Trade today for a Modern Gas Range."

"Why fuss with an old stove? You can buy a New and Modern Gas Range for only a few pennies a day."

All dealers reported increased store traffic and were enthusiastic over the extra business acquired as a result of the promotion. "These dealers, by the way, had never before realized the possibilities existing in merchandising ranges," Mr. Potter reported.

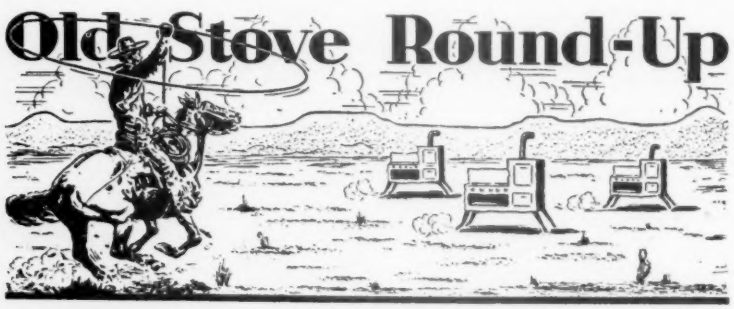
Each district manager received publicity releases, and mats depicting a mounted cowboy, whirling lariat in hand, chasing a group of old-fashioned stoves, racing away on rickety legs, the official campaign identification cut. These were available in one, two, three, and four column size, for company use and for use at the head of dealer "round-up" specials, or in the corner of general dealer merchandising advertising. The main purpose in providing the mats was to assure abundant appearance of Old Stove Round-Up insignia in the newspapers, to popularize the name and to establish it as an annual event. Responsibility for the placement of extra advertising was shouldered by the newspapers who gladly took the opportunity to sell additional space to local range dealers, thus relieving company sales managers.

Small 1 x 6 teaser ads opened in local newspapers several days before the campaign began, with large Sunday announcements in metropolitan newspapers, and regular company advertising throughout the area for the entire six weeks, with dealer and jobber advertising affording ample supplement. Inserts went out with every monthly statement to all of the 125,000 customers of the company.

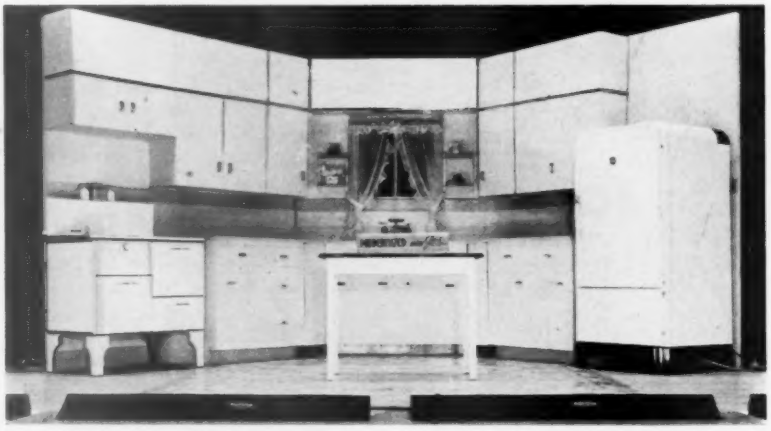
Dealers gave special window display space to gas ranges.

Radio stations carried spot announcements of fifty words, timed to be heard by women listeners.

The employee bonus plan adopted in this campaign provided any member of the gas company organization who turned in a lead between April 5 and May 15, which resulted in a sale before September 1, would be credited in the Accounting Department for $1 on the deal. Each lead

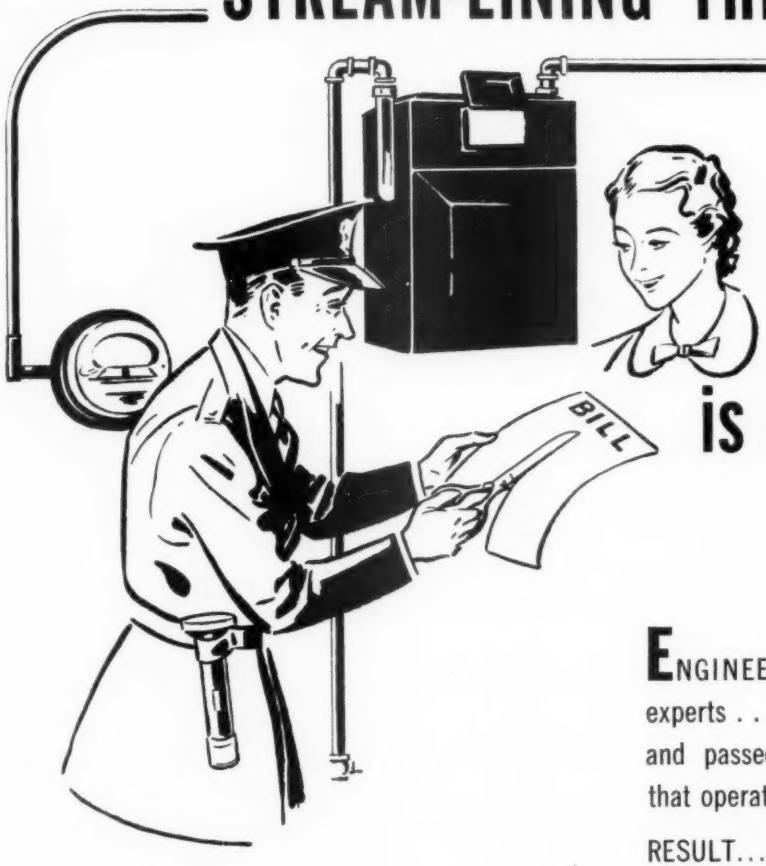


This mat furnished dealers in two, three and four column width as official campaign identification cuts. The same design was used to illustrate envelope stuffer 5½ x 3½ mailed with statements to 125,000 customers of the Oklahoma Natural Gas Company. The inserts were also available for dealers use to send out with invoices and letters.



This kitchen assembled on the stage during the Home Service Director's lectures before the attendants of her cooking school.

STREAM-LINING THE FAMILY BUDGET



is our stock-in-trade

ENGINEERS, operating, service, and merchandising experts . . . we have mustered them all to the colors and passed their achievements on to the companies that operate under the U.G.I. banner.

RESULT... during the six years from 1931 to 1936 inclusive, we have been able to effect rate reductions that totaled savings of $11,241,000, which is an average of $8.46 for every gas and electric customer in our system. Rate reductions that have opened the way to a fuller life for every house-holder.

But there is one obstacle we haven't been able to get around. During those same six years the TAXES we pay have jumped more than 75% — an increase equal to $4.41 for every customer we serve. In 1936, this one item of taxes alone amounted to an average of $9.97 for each gas and electric customer served.

We have to admit, it has cramped our style in "stream-lining the family budget".

THE UNITED GAS IMPROVEMENT COMPANY

Dedicated to Serving The Public Better Since 1882.

1882
1937

procured in this way was given to two dealers to impress the importance of an immediate follow-up, thus assuring quick results and prompt reimbursement to the participating employees.

A "kitty" was formed to afford prizes to district sales managers. The "kitty" acquired one dollar for every ten ranges sold, with 25% of the total amount at the end of the "round-up" going to the sales manager in the high district, 20% to the second high man, 15% to the third high, 10% to the fourth, and the balance divided between the eight districts on a per-range-sold basis.

Cooks Tours

The annual spring cooking school, proceeding under the name, COOKS TOURS, presented two to four day sessions by the Home Service Department, Mildred R. Clark, supervisor. The Cooks Tours covered 41 towns giving demonstrations in 38 schools in a total of 84 days. This year's attendance totaled 14,118 women, 3,110 more than last year. Total cost, including general expense—no advertising costs—was set at $2,457.11, an average cost per customer contact of $.174.

John H. Warden, General Sales Manager of the Oklahoma Natural Gas Company, wrote personal letters to all participants in the Old Stove Round-Up, expressing appreciation of co-operation and satisfaction with campaign results.

"The Old Stove Round-up, which has just ended," said Mr. Warden, "has far exceeded our fondest expectations.

"We appreciate the cooperation you have given us in this activity. The Round-up parades, the special displays, the cooking schools, store demonstrations, newspaper advertising, etc., all produced a great amount of *extra* business because of your enthusiastic participation."

A. G. A. Revised Standards Effective January 1, 1938

The A.G.A. Approval Requirements Committee, at its June 24 meeting, adopted revised standards for domestic gas ranges, hotel and restaurant ranges, water heaters, draft hoods and semi-rigid tubing and fittings. These revisions are to become effective on January 1, 1938.

Revised standards for domestic gas ranges eliminate the need for definite rating of ovens for use with city gases, and permit any rating provided the oven meets satisfactory performance requirements. A similar standard for ranges used with propane gas has been in effect for about a year. A new standard on oven preheating inputs and maintaining rates was also adopted.

Top section thermal efficiency requirements for domestic ranges have been increased for both natural and manufactured city gases, and for propane.

Revisions also place limitations on pilot lighter consumption and on the use of aluminum tubing where it is in contact with insulating materials possessing other than a neutral reaction.

The requirements for hotel and restaurant ranges have been correlated with applicable provisions of the domestic gas range standards, and with the listing requirements for various accessories. New requirements for the efficiency of open top

ranges in this class were established, both for ranges used with city gas and for those used with propane. The outstanding change in hotel and restaurant range requirements was the addition of standards for such ranges for use with propane gas and butane-air gas.

Revisions of water heater standards cover largely the automatic heaters. An added requirement for low recovery units calls for satisfactory combustion with draft hoods removed and plate placed over the flue outlet, to cover the contingency arising from frequent installation of water heaters in kitchen and living quarters in this manner.

All water heaters for use with gases having a specific gravity greater than 1.0 must be equipped with a device which automatically shuts off the gas supply to all main burners and pilots in case the means of ignition becomes ineffective.

All heaters must carry detailed instructions for lighting to insure safe lighting of pilot and main burners. If temperature relief valves are provided they must function at a lower temperature than formerly required.

Performance requirements for draft hoods have been entirely revised. Previous requirements were based upon the pressure drop through the hood when preheated air was passed through it at a definite temperature and velocity. The revisions provide two sets of performance requirements—one set governing draft hoods for use with converted central heating equipment, and a second set on draft hoods for use with gas water heaters and with gas converted water heating equipment.

Tests required on draft hoods are identical with the draft hood tests specified in most of the gas appliance standards. A listed gas conversion burner installed in a standard steam boiler is used for testing draft hoods for use with converted central heating equipment; a standard circulating tank water heater is used for testing draft hoods for use with gas water heaters and gas converted water heating equipment. This change enables manufacturers to duplicate requirements tests in their own factories, whereas, the special equipment required heretofore made testing in their own plants impracticable.

The exhibit of a horizontal draft hood in the previous standards has been replaced with a new type horizontal draft hood recently developed at the American Gas Association Testing Laboratories which shows better operating characteristics than the old type horizontal hood.

Exhibits of fittings for semi-rigid tubing have been revised to conform with the 1937 specifications of the Society of Automotive Engineers. Specifications for tubing dimensions have also been altered to permit manufacturing tolerances in tubing wall thickness. Revised endurance tests on semi-rigid tubing were adopted to give more specific test procedures and to provide tests which would be more consistent with the conditions under which semi-rigid tubing is used in the field.

Mimeographed copies of the revised standards have been distributed to all interested manufacturers. Printed forms are obtainable from the American Gas Association Test-Laboratories, 1032 East 62nd Street, Cleveland, Ohio, following their adoption as American Standard.

Modern Gas Appliances and Accessories

Heavy Duty Range Unit

American Stove Company recently introduced in the heavy duty field a uniform heat cooking top which is exclusive on their Magic Chef ranges. These tops are made in a two-plate size to fit the 32" wide Magic Chef range and in a three-plate size to fit a 48" wide range. The 32" range, illustrated here, shows clearly the huge, flexible heat capacity which is possible only through ingenious burner and cooking plate construction. One cooking plate can be set for a high temperature and the other for a low temperature. Regardless of the temperature set, a true, even heat is maintained over the entire plate.

Magic Chef Range

Giant Burner a Range Feature

Roper ranges, designed by a leading stylist working with Roper engineers, have an individuality of appearance.

The "Super-Speed" "Low Temperature" oven burner for complete meal oven cooking as well as other oven operations . . . the two-way "Multi-Flame" burner with center simmer for "Flavor-Seal" "Waterless" cooking . . . the roll-out broiler with "Astogril" . . . the big roomy insulated oven . . . and other features contribute much to the range's popularity.

Roper Range and Giant Burner

One of the features is the "Giant-Speed" burner which offers exceptional speed for large utensil operations.

A complete line of models include everything from the 36" "Cadet" to the large extra-capacity DeLuxe "Windsor."

Manufactured by The Geo. D. Roper Corp., Rockford, Ill.

Masterpiece Model Range

This new range which is sold under the Vulcan, Acorn and Oriole tradenames, includes all the latest developments in domestic gas ranges. Of special interest is the new type mantel back, and divided spring-balanced lift covers, aluminum speed simmer burners and newly developed oven burner, which heats oven unusually fast, and yet is able to maintain temperature as low as 225 degrees. These are just a few of 45 features incorporated in this range.

Masterpiece Model Range

Manufactured by Standard Gas Equipment Corporation, New York, N. Y.

Magic Chef Baking Unit

The new Series 750 Magic Chef ensures excellent, uniform results because each deck operates independently of the other. The unique construction of this baker makes every inch of the deck good baking area. There is no necessity for moving or shifting of bake goods, consequently more baking can be done in a given time. Manufactured by American Stove Co., Cleveland, O.

Magic Chef Baking Unit

Range Has Exclusive Features

In its current catalogue is described in considerable detail the ten ranges which make up the 1937 Estate line.

Human interest photographs in the introductory section of the book illustrate the operating advantages of many features which have been originated by The Estate Stove Company and are used exclusively in Estate Gas Ranges.

Model 535 Estate Range

Worthy of special mention are the Estate Leveracks (moving a lever on the side of the range slides the oven racks in and out of the oven), the new radiant broiler burner, the aluminum griddle plate built into the table-top of the range, the new Speedex burner grates which, in combination with the Speedwell top and a new burner design, are said to produce an increased efficiency of 25 to 30 per cent. An insulated cooker on a swinging arm in the utensil compartment is offered as an accessory with several of the ranges, and on several models extension plates for the DeLuxe mantel back give the effect of a completely "built-in" range.

Manufactured by Estate Stove Co., Hamilton, O.

Range With Many New Features

The manufacturers of Grand gas ranges have provided in their new series shown here, many patented and exclusive features in both the popular and custom price brackets.

Starting at the top, the lamp with the long "Lumiline bulb" gives an even distribution of light over the entire cooking surface. A light meter test shows that in addition to being an attractive adjunct to the range, the lamp has definite sight saving qualities. In the background is mounted an electric clock and a "Minute Minder," both of which are important for timing in modern cookery.

New Series "Grand" Ranges

The cooking top is hinged and may be lifted for servicing and cleaning. The top burners are radically different from the conventional type, producing about 20% greater efficiency. In addition to the large 18" oven and the large broiler with the heavy cast aluminum broiler pan, there is a convenient combination oven and broiler, thermostatically controlled, which will do any job of broiling, roasting, baking, or oven meal cooking using much less gas than required in a regular oven.

The Serve-Hot steam table in which food may be kept piping hot and ready for serving for a long time after cooking is completed provides a "fourth dimension" to modern domestic science.

Other features, such as a light in the oven, a cast aluminum griddle, and a roaster are all integral parts of this new cooking machine.

Manufactured by The Cleveland Co-operative Stove Co., Cleveland, Ohio.

Metrotherm

A thermostat, modern in design, is offered by General Controls under the trade name of "Metrotherm." This thermostat contains a small rheostat for adjusting the amount of heat acceleration.

Further information may be had by writing the manufacturer at 1370 Harrison St., San Francisco, Calif.

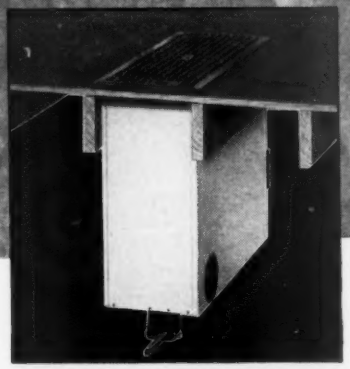
Flick-of-a-Finger Heating

FEATURED IN THE 1937 LINE OF

ESTATE GAS HEATERS

AMERICA wants low-cost automatic heating — *and gets it* in the Estate Gas Heatrola. The twirl of a dial in the room thermostat sets the temperature — and holds it. Flick-of-a-finger heating is a tremendous talking point with Heatrola's new and improved remote control.

Here is the gas heating line that's easy to merchandise and sell. Tried. Proved. Backed by one of the most famous names in heating. Send for Catalogue No. 115. The Estate Stove Company, Hamilton, Ohio.



ESTATE IN-A-FLOOR HEATROLA Nos. 75-F, 45-F, 20-F

Installed in the floor, between joists. Saves wall and floor space. Only the register face is visible and the control is all from above. Combustion chamber completely closed and flue connected. Three sizes.

ESTATE GAS HEATROLA Nos. 247-147-97

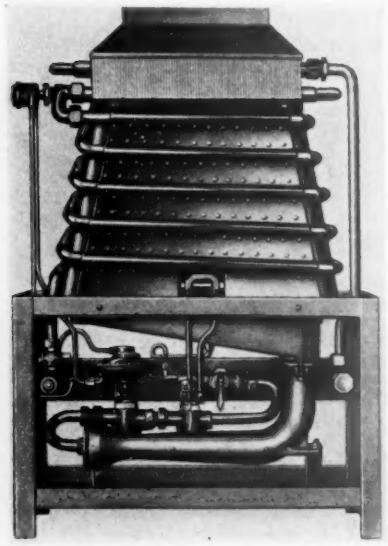
A striking new line of Heatrolas, encased in dark walnut ripple-finish cabinets, set off with chromium beading. Interior construction consists of specially designed radiating units of welded steel. Air tight. Gas tight. With lateral burner of unique design. Economical in operation. Two types of heat control available. Three sizes.

ESTATE GAS HEATROLA Nos. 171-161

A compact Heatrola with remarkable circulating power. Usually installed in front of fireplace. Gives cozy, cheerful glow through mica door. Ideal for efficient heating of one or two rooms. Two sizes.

Pittsburg Watermatic

The Pittsburg Watermatic has been constantly improved through engineering research and development. A flexible large area Diaphragm Valve is now used as the actuating water motor. The large area of the Diaphragm insures successful operation of the heater



Pittsburg Watermatic

with low pressure water systems, while its flexibility allows the heater to be operated thermostatically at small streams by merely partially opening the faucet.

The large amount of resistance, through friction, has been eliminated by the flexible Diaphragm. The packed plunger has also been eliminated, thus doing away with service calls resulting from worn or bad packing. This feature can be readily appreciated by service men.

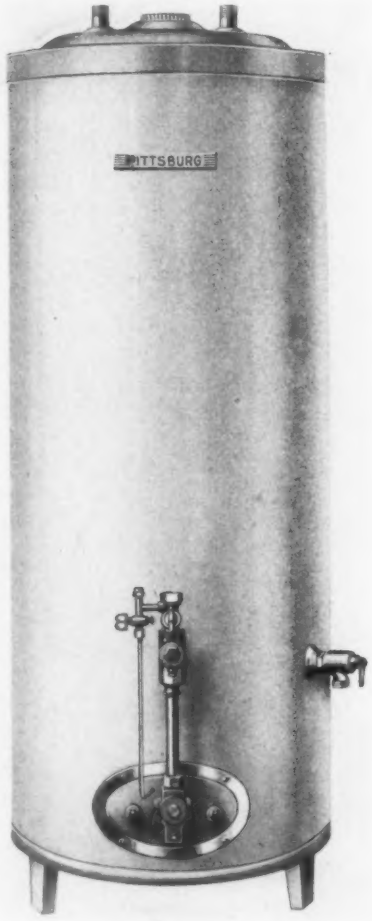
The Pittsburg Watermatic is equipped with a simple snap action, fast, dependable safety mechanism which will shut off the gas supply in the event the pilot light should be extinguished. The pilot light is of the single jet Bunsen type, thus reducing stand-by losses to a minimum. The single jet extends across a center burner port and impinges directly on the actuating element of the safety mechanism. Positive ignition is obtained in addition to safety, since the gas issuing from the burner port will instantly ignite if the pilot is lit or the actuating element will quickly shut the gas supply through the snap action mechanism.

Tests over a period of several years under the most severe conditions show this heater to be equally efficient where hard water is used—no liming and no clogging.

Manufactured by Pittsburg Water Heater Corporation, Pittsburgh, Pa.

Pittsburg Model M-1

Advanced engineering progress has been made in the Pittsburg line of Storage water heaters. The model M-1 is of an entirely new construction in that the combustion is controlled through flue channels scientifically designed and spaced around the tank to form the inner liner. Correct flue spacing around the tank is therefore always maintained, which is practically impossible to do in production with the cylindrical type inner liner.



Pittsburg Storage Heater

The proper size and correct number of flue channels are automatically punched on large presses, thus insuring uniform performance in all heaters. The uniform efficiency of all production heaters is the same since the flue spacings are all made on the same dies and equally spaced.

All sheet steel parts are treated by the Bonderizing process, giving the metal a rust resisting coat of metallic phosphates which coat becomes an integral part of the metal.

This unit is equipped with aerated speed burner, automatic temperature control and automatic pilot light control.

Manufactured by Pittsburg Water Heater Corporation, Pittsburgh, Pa.

New Water Circulator

This new water circulator is used to speed up circulation on hot water heating systems. It may be used alone for this purpose, or in conjunction with a Minneapolis-Honeywell Flow Valve to provide fully automatic summer-winter hot water control. It is quiet in operation, leak-proof due to the packless seal which does not permit the oil to enter water or vice versa. Standard unit has built-in thermal overload cut-out, and has a high starting torque requiring only low starting current and offers no radio interference. This circulator is designed to provide maximum capacity at minimum wattage input—has stainless

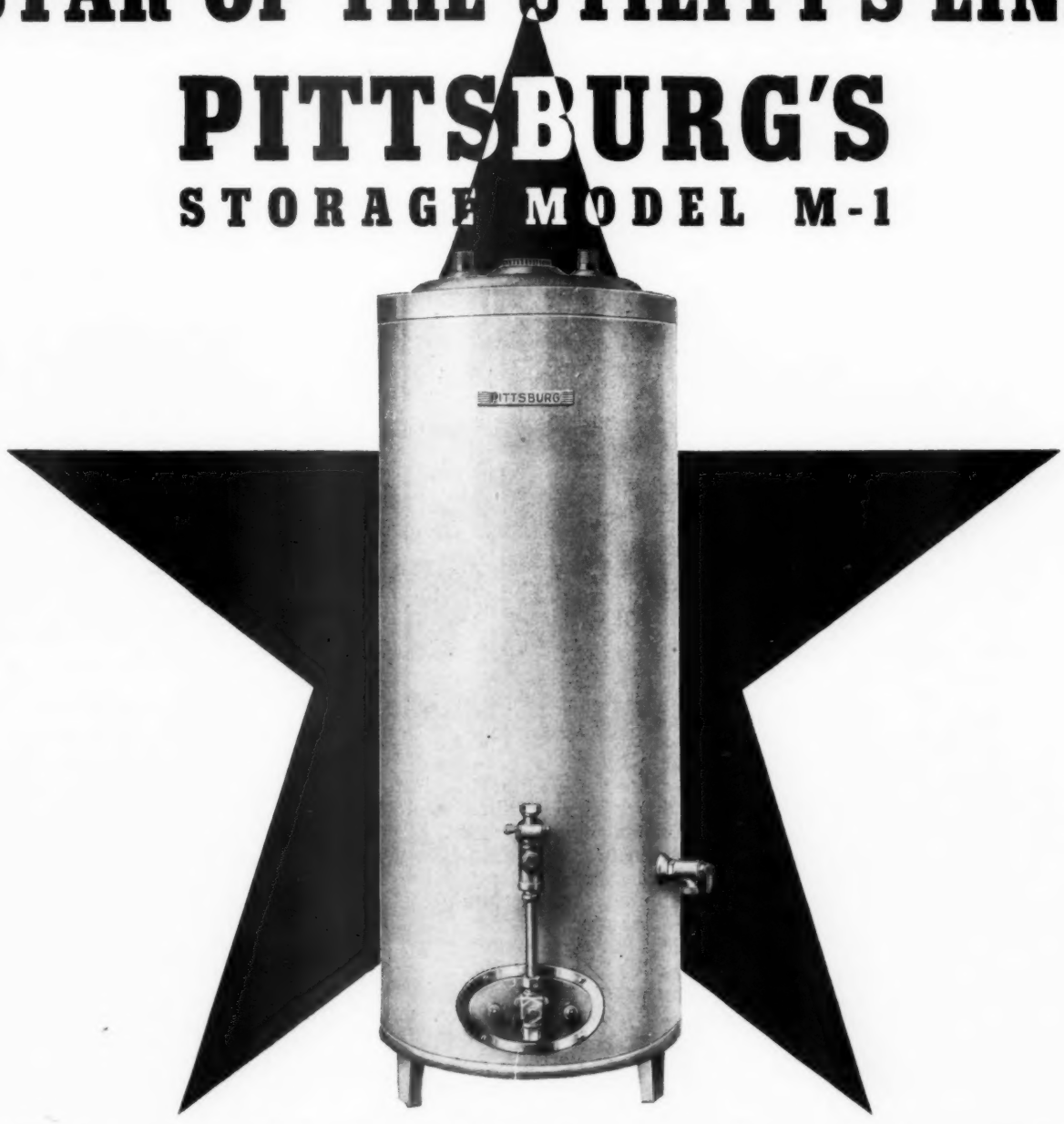
steel drive shaft and bearings of high grade bronze. Installation is simple and very inexpensive. It is offered in sizes to fit 1 inch, 1½ inch, 2 inch and 3 inch pipe mains. Although 110 volt, 60 cycle motors are standard, the Circulator is available for 220 volts, 60 cycles and 110 or 220 volts 25, 30, 40 or 50 cycles, or for 115 or 230 volts D.C.

Manufactured by the Minneapolis-Honeywell Regulator Company, Minneapolis, Minn.

STAR OF THE UTILITY'S LINE

PITTSBURG'S

STORAGE MODEL M-1



Model M-1 is made in the following sizes: 20, 25, 30 and 45 gallons.

Color:—A very beautiful soft ivory finish with the door and controls aluminum trim. White heaters on special order.

Special Features:—External flue with channelled linings and sealed construction. All sheet metal parts are bonderized to prevent rust. Extra heavy insulation of Wyolite. Positive acting safety pilot with bimetallic strip. Burner constructed with drilled raised ports.

We solicit your business on the full and complete line of PITTSBURG instantaneous, continuous flow, multicoil, booster, storage and tank heaters of all sizes.

A PITTSBURG Heater for Every Type of Service

THE PITTSBURG WATER HEATER CORPORATION

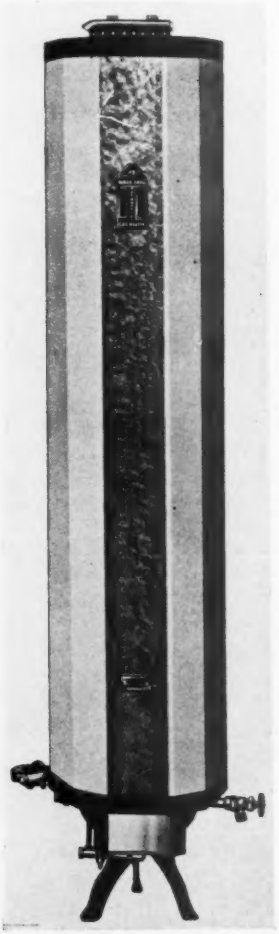
PITTSBURGH, PENNSYLVANIA

"Mirro-Shell" Water Heater

The model of automatic gas water heater shown in adjoining cut has met with much approval.

This unit designed to supply up to 160 gallons of 90° rise hot water per household day, has a capacity of 30 gallons with 10,000 B.T.U. input per hour.

Equipped with snap-action thermostat, safety pilot and low pressure regulator set for 3" water column pressure and insulated with corrugated asbestos and rockwool, this heater is very attractive in design, finish and color.



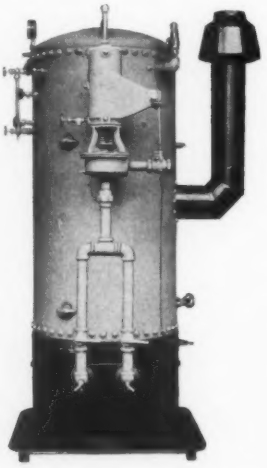
Heat application combines radiation, reflection and absorption. Heat is generated by a small flame within the combustion chamber at the bottom of the heater. It is radiated through the walls of the combustion chamber and the brass tubes carrying the products of combusiton and is also reflected by a chromium plated metal surface behind the tubes through the walls of the boiler into the water.

Manufactured by Handley Brown Heater Co., 289 E. Washington Ave., Jackson, Mich.

Flueless Gas Boiler

The patented design of HE Flueless heating surface was first incorporated into the construction of the Lattner industrial gas boiler.

Demand for a flueless gas boiler was directly from the user. In certain sections of the country a tubular boiler seemed satisfactory and long lived. However in other sections the small boiler tubes necessary in a gas boiler could only be classified as potential trouble.



By means of the HE Flueless heating surface a flueless boiler could be made equally efficient with the tubular type. It is marketed in sizes beginning at one horse power and up to and including eighteen horsepower. Illustration shows the internally fired water leg type 8 H.P. size.

Manufactured by P. M. Lattner Mfg. Co., Cedar Rapids, Ia.

In-a-Floor Heatrola

Because the floor furnace type of gas heater is increasing very fast in popularity, The Estate Stove Company is offering its In-a-Floor Heatrola in three sizes. Models 75-F, 45-F and 20-F have hourly B.T.U. input ratings of 75,000, 45,000 and 20,000 respectively.

The illustrations show the unique lighting arrangement. To light the pilot burner you lift out the center section of the register face, pull up the pilot burner, light it and lower it into position, then turn on the gas cocks. All control is above the floor.

The Estate line of gas heaters also includes several above-the-floor models, each in an assortment of sizes. An improved type of completely automatic heat control is available with any of the heaters in the line.

Manufactured by Estate Stove Co., Hamilton, O.

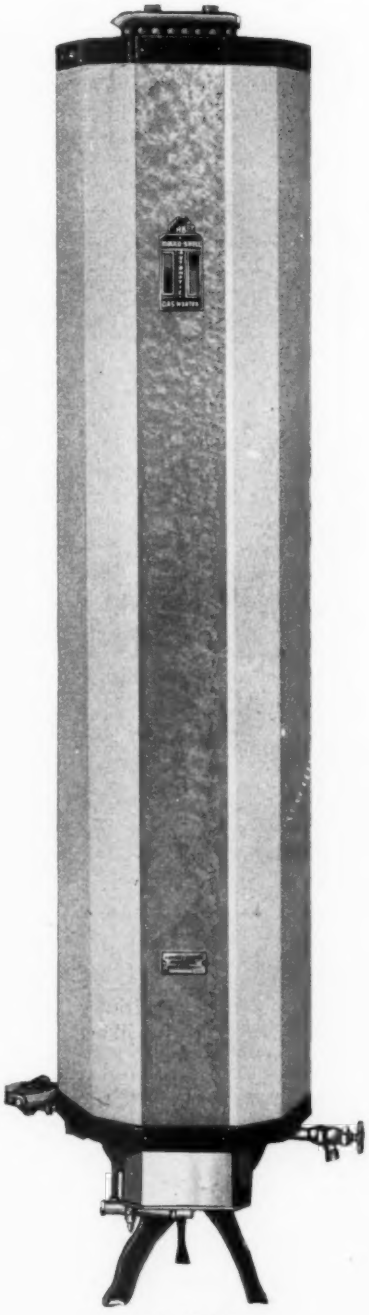
Day-Nite Time Switch

Penn Electric Switch Co., Goshen, Indiana, announce its new Type 772 Tem-Clock, a Telechron electric clock with time switching mechanism, for automatically regulating lowered night temperature when used with Temtrol (Penn's heat anticipating room thermostat).

This new unit is more compact and attractive than the highly successful Type 770 Tem-Clock introduced last year by Penn, but is powered by the same low-voltage silent, enclosed, self-lubricating Telechron motor, self-starting following current failure.

The Type 772 Tem-Clock offers three control positions. (1) Automatic control of lowered night and normal day temperature. (2) Continuous "HI" temperature. (3) Continuous "LO" temperature. A convenient, inconspicuous selector knob on the front of Tem-Clock may be set by the customer for either of these three positions. The time at which temperature will be lowered at night, and at which the burner will start to bring temperature back to normal day level in the morning may be set easily and changed as desired by the customer with equal ease. A separate, calibrated setting dial indicates time setting for each.

IMMEDIATE INCREASED GAS CONSUMPTION BY CONVERTING RANGE BOILERS INTO AUTOMATIC GAS HEATERS



M.S. 30-8-A

Heating element and insulation combined—One complete unit at a low first cost.

Quickly installed by one man.

No liming, sediment or circulating troubles.

24 gauge steel jacket; attractive two color Morocco finish.

MIRRO-SHELL

The revolutionary new method that easily and cheaply converts OLD or NEW Range Boilers into highly efficient attractive automatic gas water heaters.

MS 30-4-A— for 30 gallon tank. 4,500 B.T.U. Input. 85 gallons per day capacity.

MS 30-8-A— for 30 gallon tank. 10,000 B.T.U. Input. 160 gallons per day capacity.

MS 40-5-A— for 40 gallon tank. 5,500 B.T.U. Input. 120 gallons per day capacity.

For Complete Details, Data and Prices

WRITE

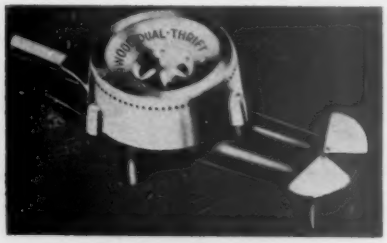
HANDLEY-BROWN HEATER CO.

JACKSON, MICHIGAN

Developers and Pioneers of the Low-input Gas Water Heater

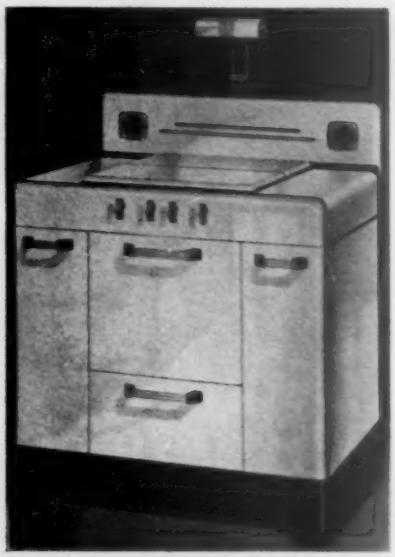
New Burner Design on These Ranges

In their recent catalog, the Glenwood Range Company place great emphasis on their new "Dual-Thrift" simmer-center top burners. Economy of operation and the convenience of a wide range of controlled temperatures are among the features of this new burner.



"Dual-Thrift" Burner

Ten new Glenwood ranges feature this burner. The illustrations show the 5200 series with divided cooking top and Monel Metal center work space and has an extra large oven operating on Glenwood's re-circulating heat principle. There is also a small, economy oven for pastry and small roasts. The broiling oven is the ball-bearing, drop-door type and has the Glenwood Double-Searing broiler pan in chrome



Glenwood 200 Series

finish. This range is also available with high broiler in place of pastry oven and in a six-top-burner model.

The 200 Series model is a 36-inch range with 16-inch oven and ball-bearing, draw-out, drop-door broiling oven. Chromium Double-

Glenwood 5200 Series

Searing broiler pan is standard equipment and provides working space adjacent each burner, and increased top cooking capacity. Storage compartments on both sides offer added convenience. Combined heat control and oven gas cock are concealed in right compartment. Clock Reminder built into back rail is standard equipment. This range is also available with red trim on handles, gas cocks, clock reminder and name plate.

Manufactured by Glenwood Range Co., Taunton, Mass.

Radiant Gas Conversion Burner

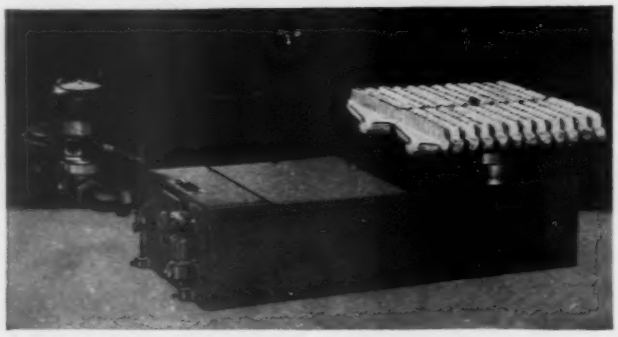
The Peerless-Bellamy Radiant Conversion Burner for gas, rapidly becoming known among the gas companies is described by the manufacturers as follows.

In the ceramic elements full advantage is taken of the superior qualities of refractory clays to produce a most efficient heating element. Each refractory element is active as a burner while passively it is a radiant. These elements are placed side by side so that the jets of burning gas from the one element, acting as a burner, contact fins or ribs on the adjacent element and heat it to a high degree of radiancy. This high radiant temperature appears in the furnace as a glowing bed of coals. The design of this ceramic element is such that the lower portion remains quite cool. Since only the fins or ribs attain a high degree of heat, the elements retain their shape without unusual stresses or strains. During the four years that they have been in use it has not been necessary to replace any of these elements because of breakage.

When started cold the radiants attain a temperature of well above 1200 degrees on the rib or fin portion in less than 60 seconds. The manufacturers rest their claims for the superiority of this construction on the fact that radiant heat is the quickest and the most intense and therefore the most economical.

These burners are adaptable for use with all types of gas. They are fitted with adjustable spuds and the primary air shutters open and close with the movements of the gas motor valve to prevent objectionable noises and flash back.

The manufacturers claim for their design economy of installation and a minimum of maintenance cost as there is a minimum number of loose parts to be placed inside the firebox when installed. This type of burner has a further advantage in the fact that the maximum amount of gas may be burned per square foot of grate area, yet when installed in oversize equipment, it is not necessary that the burner be distributed over the entire grate area. It fits as well into a round as into a square or oblong firebox because radiant heat travels with equal intensity in all directions.



Peerless Radiant Conversion Burner

Made by Peerless Manufacturing Corporation, Louisville, Ky.

2 MODELS THAT MEET *Every* REQUIREMENT

FOR YOUR CUSTOMERS AND FOR YOU

Here are two completely new Glenwood Gas Ranges that give you all the answers. Between the De Luxe 5200 Series and the 200 Series there are combinations of equipment and features to meet every requirement of price and cooking service.

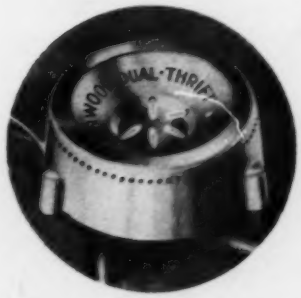
●

5200 Series (left) in three De Luxe styles. Four-burner divided cooking top. Six-burner top. Separate pastry oven. Separate high broiling oven.

200 Series (right) in two styles. Compact 36″ range with large roasting oven and draw-out, roller-bearing broiling oven. With and without "Dual Thrift" burners.

Send for Catalog No. 17

WITH THE NEW *Dual-Thrift* BURNERS



Unapproached EFFICIENCY
New Cooking CONVENIENCE
Maximum FLEXIBILITY
Modernized FOOD ECONOMY

Glenwood

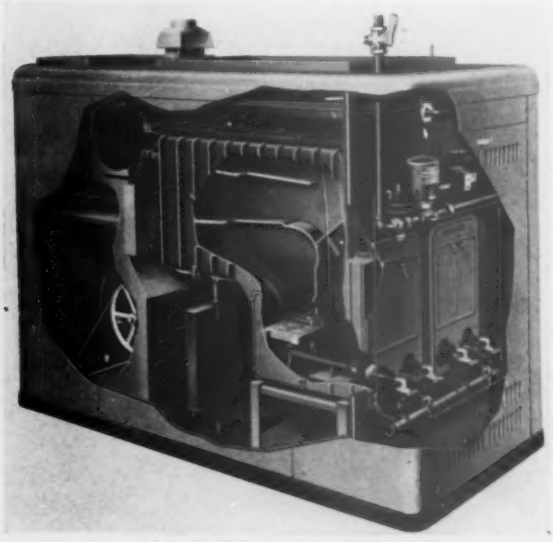
"Makes Cooking Easy"

GLENWOOD RANGE CO., TAUNTON, MASS.

Moncrief Air Conditioner

The outstanding features of the newly designed Moncrief Gas Winter Air Conditioners are style, convenience and economy. Finished in fine-grain green crackle, they express modern appliance design. The cabinet is air-space insulated, and panels in front and on all sides make the interior very accessible. Panels can be removed at any time without disturbing top or base. A metal floor makes the cabinet dust and leak proof.

The heating sections develop high efficiency because of the high ratio of radiating surface with relation to gas input—2705 square inches to a 40,000 B.t.u. burner. Radiating fins cast solid with the heating sections greatly increase radiating surface.



Moncrief Gas Air Conditioner

Gas travel is prolonged by entraining passages so that the products of combustion are required to give the utmost available heat, with consequent low stack temperature. These passages are accessible through large openings in the fronts of the heating sections, making inspection and cleaning of the interior an easy matter. The doors of the openings are fastened without bolts or screws.

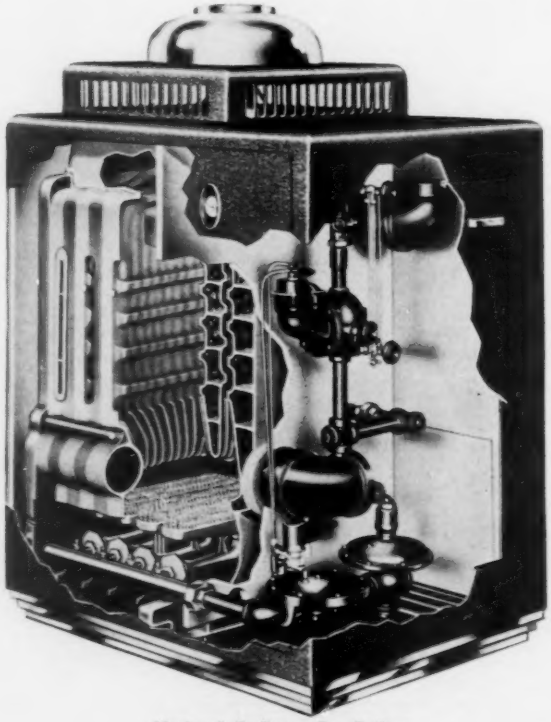
These air conditioners are equipped with a complement of automatic regulating devices of proved reliability.

Made by Henry Furnace & Foundry Co., Cleveland, Ohio.

Automatic Heating Boiler

Illustration shows a gas heating boiler adaptable for use in every size of residence and smaller commercial buildings. The boiler and all controls are enclosed in a steel jacket finished in French Grey baked enamel which will not mar or scuff. Chromium trimmings at the base and top add to the attractiveness of the unit.

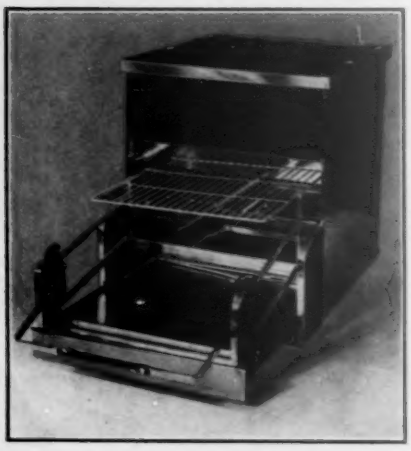
A large area of heating surface is provided. The flueways are tapered—being larger at the bottom than at the top, with baffles which shunt the gases from side to side to provide for maximum heat absorption. A large steam releasing area combined with large nipple ways between sections promote rapid circulation, quick steaming and a steady waterline.



National Radiator Co. Boiler

All controls necessary for complete automatic heating are furnished with the boilers, and are readily accessible for inspection and adjustment. The steam boilers range from 300 to 2250 sq. ft. A. G. A. rating. The water boilers have capacities beginning at 480 sq. ft. and range to 3600 sq. ft.

Manufactured by National Radiator Co., Johnstown, Pa.



Kennedy Radiant Broiler

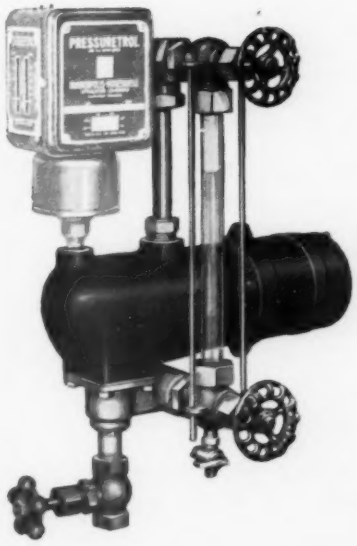
Radiant Broiler

Designed for quick and efficient service, the Kennedy gas fired counter broiler has found considerable use among restaurants, hotels and clubs. The overhead heating unit enables a highly concentrated incandescence with uniform heat distribution. An adjustable rack permits equally effective cooking of fish or meats and also making of toast. Made in 4 burner, 2 burner and counter broiler types. Manufacturers state that it reaches broiling temperature in 5 to 10 minutes and has a gas consumption about half that of other types.

Manufactured by Radiant Equipment Corporation, 1728 Grand Central Terminal Bldg., New York.

Lo-Water Cut-Off

The Minneapolis-Honeywell Lo-Water Cut-off, now available at a new low price, has many new and vital features which include quick installation, flexible mounting, alarm or signal circuit, easily accessible, improved mercury switch and Minneapolis-Honeywell quality throughout. Boiler protection is essential for steam and vapor systems. This Cut-off can be installed according to the ASME boiler code—or in the gauge glass fittings of the boiler with the resulting saving in labor and material. It is designed to fit standard half inch gauge glass openings. An unusual installation feature is that the lower fitting may be readily removed if there is not enough room to swing the entire assembly. A copper tube between mountings can be cut to accommodate various center dimensions and easily shaped to allow for any slight misalignment. The switching mechanism may be removed without dismounting the instrument from the boiler. This Cut-off is designed for use with pressures not exceeding ten pounds per square inch. The electrical rating is 10 amps. at 110 volts and 5 amps. at 220 volts with motor rating at ¾ H.P.R.I. and ¼ H.P.S.P. A manual reset is also obtainable at slight additional cost to necessitate manual attention, to restore burner operation.



Manufactured by the Minneapolis-Honeywell Regulator Company, Minneapolis, Minn.

New Streamline Design

JOHNSON

LUMINOUS CONVERTER

← ACTUAL SIZE!

Greater Efficiency!

Greater Economy!

Greater Dependability!

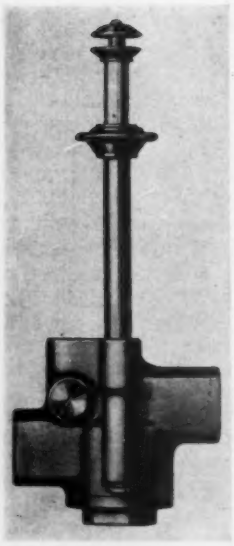
A new streamline design makes the improved Johnson Luminous Converter even more powerful, efficient and economical to operate. Free and unimpeded air-flow to the point of ignition produces more complete combustion of the gas. Greater heating value from units of fuel consumed is the net result. Improved Bi-Metal Element cuts off main gas supply in the event of pilot failure. This sensational burner is easily installed, practically trouble-free, and so economical to operate that home owners become enthusiastic boosters of gas as a domestic heating fuel. Here is a burner that you can take effectively into the huge market of medium and low income home owners.

◆

Write For New
Free Booklet
Giving Full Details

◆

JOHNSON GAS APPLIANCE CO.
Cedar Rapids IOWA



Klixon Control

"Variety" Bake Oven

Speedy production of several kinds of baked goods at one time is an outstanding feature of the Martin "Variety" Bake Ovens. These are sectional ovens made up of individually heated units each being assembled from standard parts. Each unit has individual thermostatic control and operates independent of adjoining units so that one may be held at 350° while another operates at 500°.

A circulating heat system results in even distribution of temperature and uniform baking coupled with economy in gas consumption. Additional units may be added as demand requires. Used in bakeries, hotels, restaurants, public institutions, etc.

The unit shown illustrates method of sectional construction.

Manufactured by Martin Oven Company, 420 Lexington Ave., New York.

Single unit Martin oven with part of side removed

New Gas Controls

New controls of interest to the gas industry are the Klixon EDV4 electrically operated gas valve and the Klixon C4300 series of automatic out-pilot shutoff valves recently announced by Spencer Thermostat Company of Attleboro, Massachusetts.

The EDV4 valve combines a Spencer disc actuated, rate-of-rise electric head and a diaphragm valve, which operate without hum or flutter. Operating time delay of approximately 30 seconds "off" and "on" is unaffected by ambient temperature changes. Sizes scheduled for production are from ⅜" to ¾" I.P.S. with capacities of from 100,000 to 195,000 B.T.U. per hour. Thermal head draws 9 watts, and is available for 12 volts or 110 volts A.C. Finish: Art Brown enamel.

The C4300 series of out-pilot shutoff valves combine a pilot burner and a snap-acting disc operated main valve in integral assembly. Should the pilot go out, the main valve snaps shut with a minimum of delay. Sizes to be manufactured run from 30,000 to 75,000 B.T.U. per hour, with a variety of connection tappings in continuous or 100% shutoff types. These controls can be installed in any position, and offer considerable flexibility as to length of pilot tube, location of pilot tappings, and metering cocks. Finish: Nickel.

Baking & Roasting Oven

The new Vulcan Multiple Heat Conduit Bake Oven is the latest development in sectional cabinet ovens, has exclusive multiple heat conduit sections which control and direct heat to every part of the oven. Manufacturers claim that this makes it possible to use every square inch of the oven; that baking products are evenly browned and cooked, due to unusually thick insulation. This oven is exceptionally economical to operate.

Oven is made in two styles—one for baking, which is 8¼ inches high inside; another for roasting which is 11½ inches high inside.

They are sectional, in that any combination of ovens can be made. Either closed base, or legs are furnished.

Multiple Heat Bake Oven

These ovens are also furnished in cabinet style, with four baking ovens; two roasting ovens; or two baking and roasting ovens, each deck having its own heat control, making it possible to use as many decks all with different temperatures, for various types of food.

Manufactured by Standard Gas Equipment Corp., New York, N. Y.

New Six Top Burner Model

A new Detroit Jewel range has six top burners, also two ovens—one a large baking oven, the other a smaller pastry oven. Each oven is well insulated and equipped with automatic oven heat control with control dials located on the valve panel. The pastry oven, being smaller than the large oven, heats more rapidly and consumes less fuel, yet can be used as a general purpose oven when the large capacity is not required.

Detroit Jewel Range

Broiler is drawer type, operating on roller bearings and equipped with chrome pan and chrome smokeless grill of large capacity.

Other features include: folding cover top, flush cooking top, chrome finish top burners with simmer burner on each burner, chrome finish burner pans, oven bottom tray slides out for easy cleaning.

May be equipped with lamps and condiment sets, automatic oven lighters (gas or electric type), and other features including ceramic broiler burner.

Manufactured by Detroit-Michigan Stove Company, Detroit, Michigan.

Heavy Duty Ranges

Available in three top styles—(1) all hot top (illustrated), (2) open top with 6 burners, (3) fry top. Sides of fronts extended so that ranges can be placed in battery without the use of filler strips between units. Fronts of blue polished steel. These are features of "Garland" Heavy Duty Ranges.

On the all hot top model, cooking top is heated by nine multi-jet burners which form a solid sheet of spreading flame under the reinforced cast iron top. Burners produce intense heat quickly and with efficient fuel combustion. Heat is concentrated in front and middle of cooking top and graduated toward edges and back.

Garland Range

Oven burner is of special design. It is so constructed that preheated secondary air travels directly to the burner ports, resulting in better combustion and economy. The "V" type oven bottom disperses heat equally, eliminating hot or cool spots in the oven. A reliable oven heat control automatically maintains oven heat at the desired temperature. The control permits just enough gas to maintain desired oven heat to pass to the burner. Heavy oven insulation is used, which keeps heat in the range and out of the kitchen.

Manufactured by Detroit-Michigan Stove Company, Detroit, Michigan.

Speedy Production of a Large Variety of Baked Goods

That's what the MARTIN "Variety" Oven offers for

Bakeries
Hotels
Schools
Clubs
Restaurants
Hospitals
Churches
Chain Stores

By the use of a circulating heat system, heat is evenly distributed and they are more economic in gas consumption than most direct heat ovens. Cake, bread and pastry can be baked at the same time. Their design and finish dress up any bakery, restaurant or kitchen.

They replace other fuels and obsolete gas equipment.

Ask for descriptive data and selling aids for salesmen.

Martin Oven Co.
420 Lexington Ave.
New York

LAVA

at the Point of Combustion

BURNERS—PILOTS TIPS—CAPS

ALCO LAVA BURNERS and ***TIPS*** are and have been prominent in the development of Gas Burning apparatus.

NON-CARBONIZING

NON-CORROSIVE

The material is easily adaptable to the shapes required—and economical in comparison with value received.

Send sketch or sample of designs required—estimates cheerfully supplied.

Ask for special gas burner booklet.

Sole licensees for Barber (Surface) and Clark Industrial Burner Tips.

Also manufacturers of ALSIMAG, — die-pressed — heat resisting insulation.

AMERICAN LAVA CORPORATION

Chattanooga, Tennessee

Luminous Flame Converter

Designed to eliminate obstructions which might impede the movement of secondary air to the ports the Johnson Luminous Flame Converter claims greater heating value from units of fuel consumed.

The standard assembly for home heating installations includes the converter burner head as shown, complete with safety pilot and adjustable orifice tee.

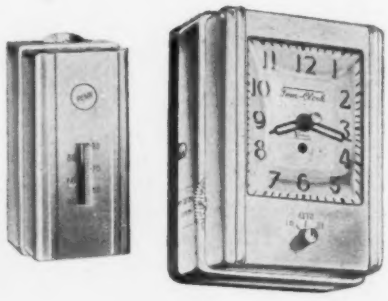
Automatic Control assembly includes Minneapolis-Honeywell V-15-5 Valve or V-16 solenoid valve and T-11 Acratherm. An improved bi-metal element (shown on the right of illustration) controls main gas supply in case of pilot failure.

A suitable unit for low cost gas home heating installations. Manufactured by Johnson Gas Appliance Co., Cedar Rapids, Iowa.

Day-Nite Temtrol

Temtrol (Penn's heat anticipating room thermostat) has proved to be a popularity leader in the heat control line of the Penn Electric Switch Co., Goshen, Ind., the past year. This control, known as the Type 860, for Day-Nite temperature regulation with Penn's Tem-Clock, is designed with the adjusting dial at the top and with a recessed thermometer, for table height mounting.

Thus located, and because of its heat anticipating feature, the Type 860 Temtrol gives extremely close temperature regulation in the "four foot zone," named by Penn, the Comfort Zone. The claimed advantages of Penn's Comfort Zone



Temtrol and Tem-Clock

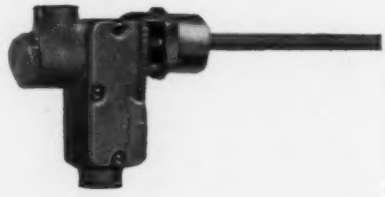
Control are not sacrificed for automatically lowered night temperature, inasmuch as the time switching mechanism, Tem-Clock, is a separate instrument and may be mounted at eye level in any room selected by the customer.

Type 860 Temtrol is finished in satin silver bronze and is styled to harmonize with the company's Type 772 Tem-Clock.

Controls for Bottled Gas

During the past few years Bottled gases such as Propane, Butane, etc., have enjoyed a sharply increased demand.

The high B.T.U. content of these gases, together with the fact that they are heavier than air, make it necessary to provide appliance controls of a somewhat different design than heretofore used with natural or manufactured fuel.



The Titan Valve & Manufacturing Co. of Cleveland, Ohio, after considerable research has perfected and is now supplying a snap-action thermostat and safety pilot for use on Bottled gas water heaters.

These controls are now available in ⅜" and ½" I.P.S. gas connections.

Stepping Up the Sales of Major Gas Appliances

W. B. Stoddard interviews P. G. Burns of Minneapolis

"OPINIONS differ regarding the selling of major gas appliances," said P. G. Burns. commercial manager of the Minneapolis Gas Light Co., Minneapolis, Minn. "Some think it is better to have their outside salesmen concentrate on a single appliance, such as a range, or a refrigerator; others, that it is better for him to sell the complete line of gas appliances. We have tried both plans, and have come to the conclusion that the latter is the better. Many houses that have changed to gas heat are in the market for a number of appliances. They would rather deal with one man, in whom they have acquired confidence, than to be solicited by a refrigerator salesman, hot water man, or range representative. Accordingly, all of our representatives now sell our complete line.

"We have two crews of salesmen, of approximately 50 each. One sells gas heat; the other, gas appliances. All of the men spend a portion of their time on the salesroom floor, and it is here that many of their prospects are developed. If a deal is not closed on the floor, but the party seems interested, his name and address goes on file. Each salesman has a certain definite territory, which is his exclusively, and unless a sale is actually closed by the floor salesman, the interested party becomes the prospect of the man in whose territory he is located. Of course the men develop many of their own prospects outside, either through friends, or through contractors, builders and realtors, with all of whom they make it a practice to be on good terms. In going to a home to sell one appliance they are able to check up on the gas appliances possessed by the householder, and to suggest others. They make it a special point to suggest some new gas unit for Christmas, and for Mother's Day—the two days when gifts that will give Mother comfort, convenience and more leisure are especially appropriate.

"They work in close co-operation with the corps of house heating salesmen, for when a new gas heating unit has been installed, the householder is usually so pleased with its convenience that he is in the mood to be sold other gas conveniences—such as a refrigerator, a newer model gas range, or a hot water heater—all of which are sold on monthly payments, if desired.

"One of the most effective publicity methods for our appliances is the many attractive displays of same in our large new modern salesroom and offices. People paying their monthly gas bills cannot fail to note them. For instance, to the left of the main entrance are two rooms, one devoted to water heaters, and the other to refrigerators. An appliance salesman is always on hand in each of them to give information regarding their use and installation. Both rooms have soft carpets, and easy chairs of modern design, which face modern cabinets of navy hue, trimmed in chrome, the interiors backed with pale blue and indirectly illuminated. The heater cabinet shows four heaters of different design, with block letters above it 'Heat Water with Gas.' The second room is similarly fitted up and has a six unit cabinet showing six different sizes and types of refrigerators, with the message 'Electrolux Silent Gas Refrigerators.' Seated at their ease, prospects are given full information, and furnished with folders for further perusal, supplied by the manufacturers.

"Passing down the long salesroom, one comes next to a booth devoted to gas conversion burners. It is divided into two portions, and a canvas sign extending entirely across the booth says 'The Same Furnace —but what a difference in the Room.' The first shows an old style coal furnace, with a pile of dusty coal, kindling, old papers, ashes, and the general litter associated with furnaces, as well as an old broom and big coal shovel. The other shows a modern gas conversion burner installed in the furnace, which is painted white, as there is no dust, soot or ashes to disfigure it now. The floor is as clean as are any of the main floors—and the room is now ready to be converted into a play room or den. At the end of the booth is shown one of the conversion burners at work.

"Much of our success in putting over appliance sales is due to our attention getting window displays, under the supervision of V. C. Lutter, display manager. We feature only one appliance in each window, and there is something new each week. During the fishing season he linked up with this sport, showing a small boy fishing in a stream, and close by a gas refrigerator—not a sound coming from either.

"A little stunt that directed wide attention to our lines recently was our Nut Contest. We showed in the window a great basket of 'nuts from brown October's wood.' There were nuts of all sizes, shapes and varieties, and we invited the general public to estimate the number of nuts in the basket. Cards for entering the contest could be had at the office—the whole thing being arranged to focus attention upon our line of gas conveniences. The first prize was a gas conversion burner; second, hot water heater; third to seventh, a Radiantfire each. All of these were displayed in the window. Cards suggested "Get your gas appliances NOW and avoid the winter rush."

"Each salesman is paid a certain definite salary, plus a commission on all units sold. There is no established quota that one must fill before receiving a commission, but the records of each man are constantly before us, and unless he displays real selling ability a salesman does not last long.

"With the gradual upturn of business sales all along the line are improving, and people who for several years have been wanting a new range, or a silent refrigerator are now gratifying their desire, so the outlook for business is excellent."

"Toward the rear of the room, near cashier's desk are two model gas kitchens, one in ivory, the other in rose. The built-in fixtures were supplied through the courtesy of a local building firm, but each kitchen is equipped with a gas refrigerator, hot water heater and the latest model gas range. In one of them is a domestic science expert, who gives periodical demonstrations of cooking and canning. She does no selling whatever—and is there solely to serve the housewives and advise them regarding their housekeeping problems. She is thoroughly conversant with the gas refrigerator, heater and range, however, and can give any information regarding their operation. The object of her presence is to convince housewives of the superiority of gas operated appliances. She has typed recipes of everything she cooks, which are given out to all visitors.

News of the Industry

Higher Gas Rates Disapproved by Illinois Commission

The Illinois commission, in an extended opinion, disposed of claims by The Peoples Gas Light and Coke Company for higher gas rates and annulled proposed rate schedules. The commission determined a rate base by consideration of reproduction cost and original cost, rejecting a claim for reproduction cost as a rate basis. A return of 5.95 per cent was held to be fair.

Deduction was made for accrued depreciation after consideration of functional depreciation as well as observed condition of the property. No separate allowance was made for going concern value. A claim for working capital allowance was reduced in view of the average time required between rendition of gas service and collection, credit extended to the company as an offset to credit extended to customers, and accumulation of cash for tax payments at a future date

Original cost rather than reproduction cost was held to be the proper basis for annual depreciation allowance. The commission ruled that there could be no requirement that the present ratepayers be asked to pay as depreciation expenses to be met out of current revenues any greater amount than the actual loss caused by depreciation in a year at the present time so long as the account of depreciation deducted from cost new in arriving at present value was taken as the actually existing depreciation.

Allowance was made for new business expense, but it was held that losses and expenses on merchandising operations should not be allowed where merchandise was sold primarily for direct profit rather than for the purpose of inducing greater use of gas.

Gas Output At High Point

Texas produced 1,683,843,000 feet of gas daily in May from 2,820 wells in 313 gas reservoirs, according to the State Railroad Commission.

The report showed 1,073,995,000 feet of sweet gas from 2,490 wells and 609,848,000 feet of sour gas from 330 wells.

Disposition of the dry gas was 56.43 per cent for light and fuel. 59 per cent for gas lift and repressure, 3.61 per cent for lease and drilling operations and 39.37 per cent to plants for gasoline extraction.

A total of 2,051,184,000 feet of gas was processed by 127 gasoline plants which recovered 1,978,160 gallons of 27-70 grade gasoline.

Thirty-six carbon black plants reported 811,663,000 feet of residue gas burned to produce 1,319,484 pounds of carbon black daily. They averaged 1.63 pounds of black per 1,000 feet of residue gas.

Colonel Burrell V.P. of Atlantic States Gas Co.

The election of Col. George A. Burrell, well-known gas engineer, to the vice presidency of Atlantic States Gas Co., Inc., has just been announced from the company's offices at 50 Broadway, New York City.

Among gas engineers Col. Burrell is known as the scientist who discovered the rich helium reserves near Petrolea, Tex., during the World War, as the inventor of the Burrell standard fireman's gas mask, and as co-inventor of the Burrell-Oberfell process for extracting gasoline from natural gas by the charcoal process. Col. Burrell spent 1930 and 1931 in Russia helping direct modernization of that country's natural gas industry.

In recent years Col. Burrell has been devoting a major part of his time to liquefied natural gas. With an associate,

COL. GEORGE A. BURRELL

B. B. Stroud, he helped form Atlantic States Gas Co. Inc, in February, 1936. Since then he has been a director and operating manager of the company which supplies liquid gas in underground tanks for cooking, water heating, and refrigeration fuel for farm and rural community customers beyond the reaches of pipe gas mains. He also is president of the Burrell Technical Supply Co., and the Burrell-Mase Engineering Co., Pittsburgh.

In conjunction with the announcement of Col. Burrell's election to its vice presidency, Atlantic States Gas also announced a contract to supply liquefied gas for fuel for the largest rotary lime kiln in the world at the plant of the Chemical Lime Co., Bellefonte, Pa.

Col. Burrell holds the distinguished service medal from the U. S. Government, the Lamme medal for attainments in engineering from Ohio State University, his alma mater; and an honorary doctorate of science from Wesleyan University, Middletown, Conn.

Odorization of Gas in Texas

Odorization of natural gas in the 300 towns served by the Lone Star Gas Company was started late in July by company engineers, in accordance with a law passed by the Texas Legislature. The odorant was introduced into Lone Star's main line at Gordon on July 26 and on the following day at Trinidad. The entire project was scheduled to be completed in less than a month, with the odorant to be introduced at Chillicothe, and Fox and Hollis, Oklahoma, and a number of intermediate pipe line points. From these points the odorant travels to the various towns and cities over the system.

The Texas Railroad Commission on July 27 issued its order promulgating rules for injection of malodorants in gas sold for private and commercial use. Lone Star began its odorization project prior to issuance of the order to have the work completed before the fall and winter demand for gas starts, officials pointed out.

The order directs that the malodorant used shall be harmless and neither toxic nor nauseating, non-corrosive to steel, iron, brass, bronze or leather, and insoluble in water. No specific type of the malodorant agent is specified but when introduced into liquefied petroleum gas must be of such distinctive odor as to indicate the presence of gas in concentrations not greater than one-half of 1 per cent by volume, and in natural gas to indicate the presence of concentrations not greater than 1 per cent by volume.

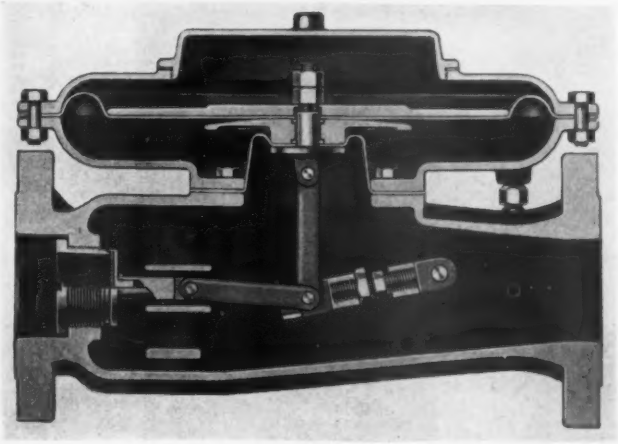
Advertisements, advising customers that the company was to odorize its gas appeared in newspapers over the system. The advertisements pointed out that consumers should call their plumbers in case of a leak in piping or connections. Many newspapers over the system carried articles announcing the odorization project.

ARC Welding Award Progress

Industrial professional men from every state of the Union have expressed interest in the $200,000 Award Program sponsored by The James F. Lincoln Arc Welding Foundation, Cleveland, Ohio. According to an announcement received from the Foundation, requests for the book of Rules and Conditions have come from approximately 1000 cities and towns representing every state. By far the larger majority of the inquiries have been from engineers, designers and architects.

The widespread interest is, of course, due primarily to the number and size of the awards. There are a total of 446 separate awards ranging from $100 to $10,000. The grand award is $13,700. Individuals engaged in the design, engineering, manufacture, fabrication or construction of any product or structure of metal may participate.

Industrial
GAS CONTROL



Cross-Section View — REYNOLDS Dead Weight — Single Balanced Valve, Toggle Type Regulator

★ Greater capacity . . . increased range . . . quicker response . . . these are decided advantages of Reynolds Improved Gas Regulators for industrial control. They assure smooth, constant outlet pressure and volume even though inlet pressure and volume are irregular. Manufactured in single or double valve construction, Reynolds Industrial Regulators are proved by performance in factory tests and on installations throughout the world.

REYNOLDS PRODUCTS

High Pressure Service House Regulators—Straight Lever Type—Models 0-10-20 series; Toggle Lever Type—Model 30 series.

Low Pressure Service or Appliance Regulators.

District Station Regulators, Single or Double Valve—Auxiliary Bowl and Automatic Loading Device Optional.

High Pressure Line Regulators—Pilot Loaded—Pilot Controlled.

Toggle Type Regulators—Single Valve, Double Valve, Triple Outlet.

Seals—Dead Weight or Mercury. Back Pressure Valves . Automatic Quick Closing Anti-Vacuum Valves . Automatic Shut Off Valves . Lever Operated Valves . Louver Operated Device . Atmospheric Regulators . Vacuum Regulators.

★

Branch Offices:
421 Dwight Building
Kansas City, Mo.

2nd Unit,
Santa Fe Bldg.
Dallas, Texas

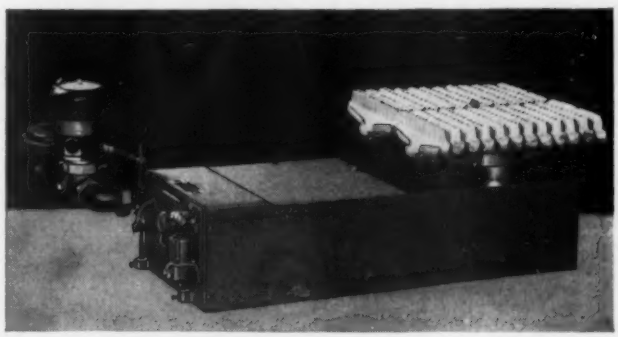
Representatives:
Eastern Appliance Co.
Boston, Mass.

REYNOLDS GAS REGULATOR CO.
ANDERSON, INDIANA, U. S. A.

GAS CONTROL SINCE 1892

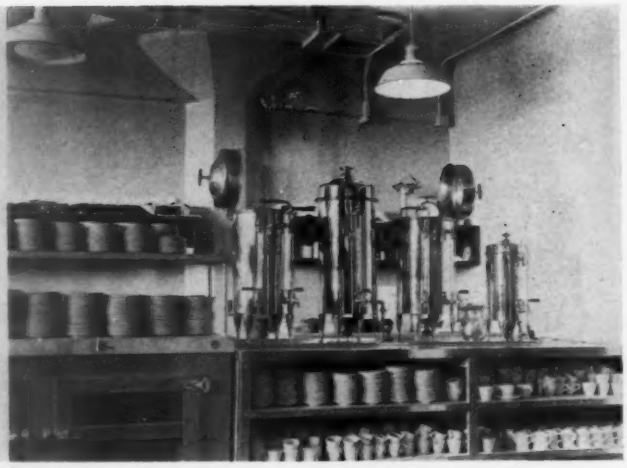
LIKES A CHAMPION

Everyone thrills and marvels at his technique . . . When you install PEERLESS BELLAMY Conversion Burners your customers will have a champion of *Quick, Intense, RADIANT* heat that they will like.



PEERLESS
Manufacturing Corp.
LOUISVILLE, KENTUCKY

The Gas Water Heating and Refrigeration Exhibit



Gas Fired Tea and Coffee Appliances

Elaborate Installations of Gas Equipment

Ranges, Bake Ovens, Coffee and Tea Making Appliances in the New Merchandise Mart in San Francisco

By Charles W. Geiger

The new $3,000,000 Western Furniture Exchange and Merchandise Mart, just opened in San Francisco, not only provides the largest and most elaborate display of gas ranges, gas heaters, gas appliances and accessories ever seen in San Francisco but it also includes a modern and elaborate installation of gas range, gas bake oven and gas fired coffee and tea making appliances on the top floor kitchen. This kitchen is operated in connection with the dining room with accommodations for 850 persons and the smaller dining rooms with accommodations for 150 persons — a total of 1,000.

Mr. Frank Sullivan of Nathan Dohrman Company designed the kitchen and dining rooms and the Nathan Dohrman Company installed all the kitchen appliances. These include a gas range 8 feet in length, a gas fired Blodgett Bake oven, a gas fired Glockler cooker for cooking meats and vegetables, a 40-gallon gas fired Wearever aluminum kettle for soup, two gas fired Dohrman coffee urns and two hot water urns for coffee and tea. The gas fired automatic toaster has a capacity of 420 slices per hour.

The new Western Furniture Exchange and Merchandise Mart, erected at a cost of $3,000,000, is the largest mercantile building to be built west of Chicago by private capital since depression days, and provides the last word in modern construction and facilities for serving the western home furnishing industry. It is expected that it will do an annual business of nearly $50,000,000 and that many thousands of home furnishing buyers of the entire west will make visits to San Francisco annually because of it.

The new Mart contains over a half million square feet of floor space. In addition to the display space, there are two tower floors devoted to offices, a large auditorium and the dining rooms previously mentioned. A basement provides a spacious garage and parking facilities.

More than 300 exhibitors of over 600 lines of home furnishings from all parts of the United States are housed in the new building. These include gas and electric appliances, radios, furniture and bedding, floor coverings, draperies, curtains and accessories, housewares, lamps and gift wares. In addition, the new Exchange is the headquarters for offices of the Gas Appliance Society of California, the Electric Appliance Society of Northern California, the Pacific Radio Institute, Retail Furniture Association of California, the Western Furniture Conference.

The new Mart marks the evolution of a far-visioned plan of marketing launched in 1915, by Harry J. Moore, president of the Western Furniture Exchange and Merchandise Mart when he established in San Francisco the first Furniture Exchange west of Chicago. The first Market was attended by only 15 out of town dealers in contrast to the present Markets which draw thousands of dealers from all parts of Western America.

Gas Appliance Dealers Participate in Prizes

Two hundred sixty-seven Brooklyn and Queens appliance dealers won one or more prizes in the Home Run Contest sponsored by The Brooklyn Union Gas Company for its approved dealers. The contest extended from March 15 to July 15. All sales made in that period counted toward prizes provided appliances sold were delivered by August 1.

The prizes in the contest ranged from leather billfold and key sets to Hamilton diamond-studded watches. A definite number of points was set for each prize. Thus dealers could win more than one prize. To qualify for a prize, however, the dealer had to be credited with ten or more points.

A certain number of points was given for each appliance sold. A gas designed house heating boiler or furnace earned 20 points; a conversion burner, ten points; a refrigerator four points, an automatic storage water heater, four points, and a conversion type water heater, two points.

The contest was inaugurated at the fourth plumber dealer dinner given by the gas company to its approved dealers on March 11 in the Columbus Club, Brooklyn.

The Linden Plumbing and Heating Co., one of the gas company's oldest dealers, won the contest by a handy margin. Philip Maher, the proprietor of the Linden concern, was determined from the outset to win. And he rolled up a total of 458 points to earn the honor of leading all company dealers.

H. K. Wrench General Manager Minneapolis Gas Light Co.

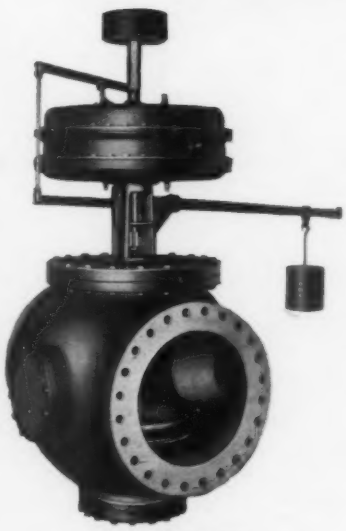
Harry K. Wrench, vice president and general manager of the Jacksonville Gas Company, has been appointed general manager of the Minneapolis Gas Light Company, according to an announcement made recently by F. W. Seymour of New York, president of the Jacksonville and Minneapolis companies.

SUPERIOR

Diaphragms
Provers
Repairs
Service Cleaners
Gas Meters

SUPERIOR METER CO.
Brooklyn, N. Y.
167 - 41st Street

PRODUCTS OF FORTY YEARS' EXPERIENCE——



Low Pressure

Irrespective of the service or pressure there is a "Fulton" Regulator to meet each requirement. Illustrated are the Duplex Sensitive Gas Governor and the Toggled Reducing Regulator. giving details of all types. Catalogue, mailed on request,

Medium Pressure

CF

THE CHAPLIN-FULTON MANUFACTURING CO.
28-40 PENN AVE. PITTSBURGH, PA.

Modern Gas Equipment Featured at Stewards & Caterers Exposition

The annual get-together of the leading food stylists of this country and Canada was held at The Bellevue-Stratford, Philadelphia, Pa., during the week of August 16. This was the Convention of the International Stewards and Caterers Association and was attended by hundreds of men and women from practically every State.

Realizing the great influence these men and women have in the important kitchens of the nation, the American Gas Association, through the Committee on Displays at National Industrial Expositions of the Industrial Gas Section, sponsored a modern heavy duty gas cooking equipment exhibit that was educational as well as attractive from the standpoint of equipment shown.

The chief attention-getter was a pair of heavy duty gas ranges. One was a late 1937 model and one was of the vintage of 1934. Under the caption "Here's Proof That Modern Gas Equipment Will Save You Money" large dial gas meters, one connected to each range showed that the oven of the fully insulated 1937 model kept a temperature of 450° with about 25% less gas than was used by the older, uninsulated range. Graphic charts showed continuous records of temperatures both inside and outside of each oven. Those who visited the booth could easily recognize not only the economy of the new ranges, but the superior working conditions for those who work around them.

The new heavy duty ceramic gas broilers occupied an important place in the gas section of the exposition, which occupied the large roof garden of the hotel. These large gas appliances have been completely remodeled for more attractive appearance and for ease in keeping clean; an important point in the sanitary commercial kitchens of today.

Among other equipment shown was a gas heavy duty deep fat fryer designed for the larger kitchens, and a two deck gas bake oven with individual heat and thermostatic temperature control for each deck.

An interesting demonstration featuring the preparation and baking of pies was given Monday evening and again on Wednesday afternoon for the visiting stewards and caterers by the Philadelphia Restaurant Association who were hosts for the Convention. The large deck gas oven used in this demonstration was one of the contributing reasons for the wholesomeness and attractiveness of the different kinds of pies that were baked by Monroe "Boston" Strause the outstanding chef in charge.

The American Stove Company's new line of heavy duty gas ranges was shown by the local dealer, and several miscellaneous commercial gas cooking appliances were exhibited and demonstrated by various dealers. Savory, Incorporated, showed for the first time the all stainless steel revolving gas toaster in addition to the standard porcelain enamel models. Anthracite coal and electric ranges were also exhibited at the exposition.

The American Gas Association exhibit was conducted with the cooperation and help of The Philadelphia Gas Works Company, Detroit-Michigan Stove Company, Standard Gas Equipment Corporation and The Blodgett Oven Company. Harry A. Sutton, Chairman of the Association's Industrial Display Committee, Frank H. Trembly, Jr., Asst. Gen. Sales Mgr., The Philadelphia Gas Works Company, and Eugene D. Milener, Secretary, Industrial Gas Section, organized the gas exhibit. The booth was manned by Charles C. Hanthorn, and David M. Barrett of The Philadelphia Gas Works Company.

Odorization of Natural Gas

Beginning September 25, 1937 all gas companies in Texas selling natural gas or liquefied petroleum gas including bottled and other odorless gases, are required to continuously odorize gas sold to the public by the use of a malodorant agent. Such agent must be harmless and neither toxic nor nauseating, whether in natural state or in the products of combustion; it must be non-corrosive to steel, iron, brass, bronze or leather and insoluble in water.

The order provides:—"The malodorant agent to be introduced into natural gas shall be of such character as to indicate by distinctive odor the presence of gas when such gas is present in concentrations not greater than one percent of volume. The malodorant agent to be introduced into liquefied petroleum gas in either its gaseous or liquid state must be of such character as to indicate by a distinctive odor the presence of gas when such gas is present in concentrations not greater than one-half of one percent by volume. By this, it is meant that the gas shall be given an odor by adding an agent that will vaporize, dissolve in or be so mixed with the gas or liquefied petroleum gas as to produce an odor readily perceptible to normal or average olfactory senses of a person coming from fresh, ungassified air when gas is present not more than one part to ninety-nine parts in cases of natural gas and not more than one part gas to one hundred and ninety-nine parts air in cases of liquefied petroleum gas."

Before installation of mixing equipment it must be submitted to the Commission together with specifications for the malodorant and quantity to be used per million cubic feet.

Reports to the Commission are required at regular intervals. The order does not require odorization in natural gasoline extraction plants, carbon black plants, natural gas gathering lines or gas used in lease and field operations or in repressuring wells.

MICHIGAN COOPERATIVE EXHIBIT

More than 200,000 people visited the grounds where this cooperative gas exhibit was shown during the Muskegon Centennial.

Michigan Cooperative Exhibit

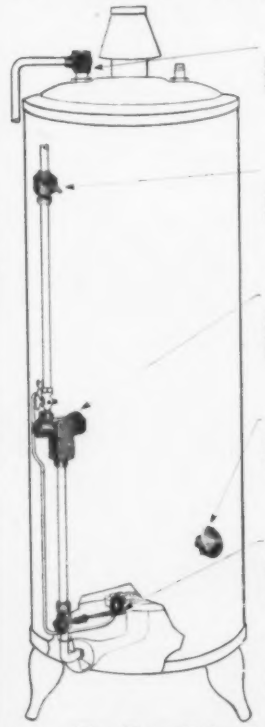
The city of Muskegon, Mich., recently completed a celebration in honor of its 100th birthday. As part of the celebration various educational and merchandise displays were made in connection with carnival attractions.

The Muskegon Gas Company display, under the direction of Mr. Harry Parker and Mr. A. F. Dahlman, erected an exhibit building equipped with the latest gas burning appliances. This was done with the cooperation of gas appliance manufacturers and several gas companies of western Michigan. The building, 30′ x 60′ was air conditioned with a gas engine compressor unit and the distribution system supplied with air by the fan equipment of a gas designed furnace.

During the two weeks that the exhibit was open, over 200,000 people visited the grounds. Photographs show the interior and exterior of the building.

Muskegon, at one time the queen of the lumbering industry, is now a city of approximately 70,000, with a number of manufacturing enterprises.

For Perfect Control Specify Titan



Titan Relief Valve

Prevents excessive pressure and temperature. Pressure relief at 150 pounds, temperature relief at 200° F.

Titan Safetystat

Automatically shuts off all gas to the burner in the event excessive temperatures are developed.

Titan Snap Action Thermostat

Is an extremely sensitive instrument providing perfect control of water temperatures. Equipped with a Temperature Selector.

Titan Nu-Drain

Its compact design provides almost complete concealment of the body. It improves the appearance of any heater.

Titan Safety Pilot Control

Automatically prevents escape of unburned gas from main burner in case the constant pilot flame should become extinguished.

Titan Controls are built to meet the rigid requirements of water heater manufacturers. Catalog and full details on request.

The Titan Valve & Manufacturing Company

Thermostats—Safety Pilots—Relief Valves—Safetystats

9913 Elk Avenue N.E. Cleveland, Ohio

Chace Thermostatic Bimetal is the active element used in the "Motor Cop" to assure automatic protection against overloads in fractional horsepower motors without the handicap of adherence to customary 140% of overload value limits.

If you make a product that calls for automatic action at a given temperature or if your product is to control temperature—use Chace Thermostatic Bimetal, a type for every purpose. Sold in sheets, strips and in shapes ready for assembly.

W. M. CHACE CO.

1610 Beard Avenue - - - Detroit Mich.

NO

• CORROSION

Rust plays havoc with ordinary pipe. This one, a substitute for cast iron, had to be replaced after a few years underground.

• CUTTING EXPENSIVE PAVEMENTS

When corrosion sets in, leaks and losses begin. That means cutting expensive pavements to replace the old, worn pipe . . . an expense you never face when your mains are *cast iron* mains.

• REPLACEMENTS

Cast iron is the one ferrous metal that resists corrosion . . the chief cause of pipe failures. Next time pay a few pennies more per foot and get *permanent* mains with

McWANE 2" CAST IRON PIPE

Modern Mechanical Joints

This small difference in first cost is offset many times by elimination of maintenance . . reduction in gas losses . . and the 80 or 90 more years of service that you get with *corrosion, resisting, cast iron* mains. Investigate!

Sand Cast Inside and Outside

McWANE

CAST IRON PIPE COMPANY

BIRMINGHAM, ALA SIZES 1¼" THROUGH 12"

Chicago, Dallas, Denver, Kansas City, New York, Portland, Ore.
Salt Lake City, San Francisco, Los Angeles

Indiana Home Heating Salesmen Hold Conference

More than 160 Indiana gas home heating salesmen and gas company officials looked, listened and learned at Indianapolis, June 30, when the Indiana Gas Association home heating division held its state-wide sales conference.

Sales Conference, Indiana Gas Association, Home Heating Division held at Indianapolis

"How To Make Sales Presentations Stay Presented", a motion picture sound film, highlighted the day's meeting. The picture is designed to overcome the four negative mental attitudes the average prospect reaches during a sales presentation. It resolves a good sales presentation into a four-step formula: (1) Ho-Hum; (2) Why Bring That Up? (3) For Example?; and (4) So What?

A dramatized presentation of "Telephone Technique and Its Effect on Sales" illustrated a more effective use of the telephone for gas home heating salesmen.

Surface Combustion Corporation's new sound-slide film "Life As You Would Have It" rounded out the "triple bill". The program also included talks and discussion of home heating problems by manufacturers representatives and gas company officials.

Arrangements for the sales conference were made by Fred G. Rastenburg, Homer Hull and Ed Demlow, all of the Citizens Gas and Coke Utility; Don Alfred of the Public Service Company of Indiana; and by Bozell and Jacobs, Inc., the association's advertising agency.

Other utilities represented at the meeting were Gary Heat, Light and Water Company, Southern Indiana Gas and Electric Company, Central Indiana Gas Company and Northern Indiana Public Service Company.

Stockholders of Leased Companies Approve Merger

Stockholders of Newark Consolidated Gas Company voted August 2 in favor of the merger of that company into Public Service Electric and Gas Company. The vote was 43,395 shares for, and 100 against the merger proposal, which has already been approved by stockholders of Public Service Electric and Gas Company at a meeting last June. Under the New Jersey law a two-thirds vote is required for merger. Approval of the New Jersey State Board of Public Utility Commissioners and the Federal Power Commission is necessary before it can become effective.

Mergers with Public Service Electric and Gas Company have been approved by stockholders of the following other leased companies: New Brunswick Light, Heat and Power; South Jersey Gas, Electric and Traction Company; Gas and Electric Company of Bergen County, and the Paterson and Passaic Gas and Electric Company.

Springfield, Mass. Exposition

The Eastern States Exposition at Springfield, Massachusetts, has attained international recognition through a series of outstanding agricultural and industrial exhibitions. It comprises a tract of 175 acres with 13 brick, steel, and concrete buildings as well as 39 other permanent units devoted to housing exhibits and displays. During the week of September 19th, more than 300,000 from all walks of life in the Northeastern States will pass through the turnstiles of this "show". Of interest to the gas man is the fact that for a number of years the New England Gas Association has sponsored an exhibit at this Exposition in cooperation with New England Gas Companies and Manufacturers. Through this Exhibit "what's new" in modern living is shown and demonstrated. This year again, under the able leadership of its Chairman, Mr. W. H. Bradley, the Committee will use the 10% discount prospect slips which will provide a definite check on the success of the Exhibit. These slips are issued to interested parties, filled in with their name and address and entitles them to a 10% discount on any appliance shown in the Exhibit if purchased by October 31, 1937. The slip is issued in duplicate, the copy being mailed to the "home" gas company by the Association.

This year the general layout follows substantially that of last year. The Modern Automatic Kitchen will again be the center of interest throughout the show with the Home Service Directors and their Assistants from the New England Gas Companies, performing all manner of cooking accomplishments, showing the superiority of modern gas ranges over other types of cooking fuels and appliances.

All that is new in gas ranges, water heaters, refrigerators and househeating is effectively displayed to persons attending. It brings forcefully to their attention the automatic features and new conveniences, in a manner to convince them of the advantages gas has to offer.

Gas Company Participants

Springfield Gas Light Company; The Hartford Gas Company; City of Holyoke Gas & Electric Department; New Haven Gas Light Company; Northampton Gas Light Company; Pittsfield Coal Gas Company; Westfield Gas & Electric Light Department; Boston Consolidated Gas Company; Fitchburg Gas & Electric Light Company; Greenfield Gas Light Company; Malden and Melrose Gas Light Company; The Conn. Light & Power Company; Suburban Gas and Electric Light Company.

Typical Display of Gas Appliances at Springfield

Alva F. Traver Goes to Jacksonville

Alva F. Traver of New York City has been elected vice-president and general manager of Jacksonville Gas Company, succeeding Harry K. Wrench, who recently was appointed manager of the Minneapolis Gas Light Company.

This announcement was made August 25 by Fred W. Seymour, president of the Jacksonville Gas Company and also president of the American Gas and Power Company. Mr. Traver is now vice-president and chief of operations for the latter concern with headquarters in New York.

In addition to his local duties, Mr. Traver will be the supervising official of the Savannah Gas Company and St. Augustine Gas Company. He is well known in gas circles, both as an expert in the operation of gas utilities and as a consulting engineer.

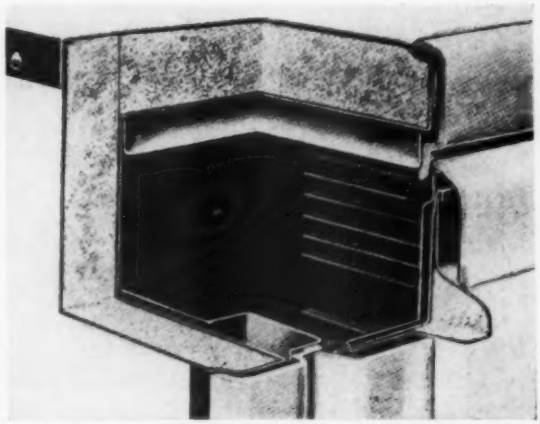
Mr. Traver was born in Jackson, Mich., and was the second holder of the Michigan Gas Association Fellowship. He obtained his Master of Science degree from the University of Michigan and shortly after graduation became superintendent of the Grand Rapids Gas Company. Mr. Traver has continued in the utility field since that time.

THERMINSUL

The Ideal Insulation for Gas Ranges

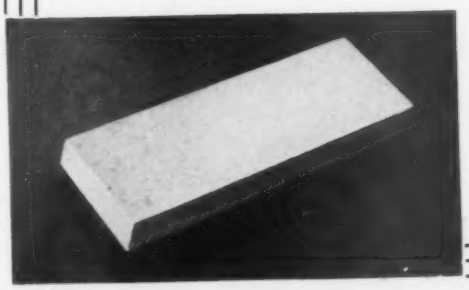
Felted Rock Wool Block is generally recognized as the most efficient permanent form of quality insulation obtainable.

Therminsul is manufactured to the exact specifications of every gas range. Each panel is cut to size to completely fill each lining—the thickness is guaranteed to be uniform and gives the maximum of insulating efficiency. It will not settle, break down, or disintegrate, but is permanent and lasting.



Every Block of Therminsul is cut to exact dimension and fits snugly into place. No joint leakage.

Therminsul has been used by the majority of leading range manufacturers for the past eight years and since its introduction over 18,000,000 square feet of oven linings have been insulated with this quality product.



THERMINSUL Permanent Insulation

THE THERMINSUL CORPORATION
1603 Fulford Street, Kalamazoo, Mich.

ALFRED I. PHILLIPS
CONSULTING ENGINEER

Rate Development — Valuations — Reports

Design — Management

122 GREENWICH STREET — NEW YORK

PURIFICATION MATERIALS

Highly absorbent, active Iron Oxide, properly hydrated and alkalized for mixing with filler . . . also ready-mixed in the form of Iron Sponge produced by a patented controlled process that insures a uniform product.

Connelly Distribution Products meet all requirements of gas systems—Station, District, Service and Appliance.

CONNELLY
IRON SPONGE & GOVERNOR CO.
Chicago, Ill. — Elizabeth, N. J.

CAST IRON BAR METER CONNECTIONS

The Kitson Meter Connection with Cast Iron Bar has been used by leading Gas Companies with great success. It is supplied with BUILT-IN LOCK WING STOP COCK, is readily adjustable and is available in various size combinations from ¾"x½" to 2"x2". Ask for literature and prices.

KITSON COMPANY
2409-15 Westmoreland St. Philadelphia, Pa.
Kitson Safety Devices (Lovekin Patents) for Domestic Water Heaters
Quality Brass Goods for Gas, Water and All Plumbing Uses
ESTABLISHED 1897

Remember, Kitson also makes a full line of GAS SERVICE BRASS GOODS, and the well known series of Lovekin Safety Devices for Gas Water Heaters.

E. F. Jeffe, vice-president in charge of sales, Consolidated Edison Company, cuts the 153-pound cake, made by Schrafft's, which was served to some 1400 children and their mothers aboard the St. John's Guild's "Floating Hospital" while on its way to Sandy Hook, August 4. The cake and a $500 check were awarded to Consolidated sales people in the nation-wide Servel-Electrolux sales contest sponsored by the American Gas Association, the American Association of Gas Appliance and Equipment Manufacturers and Servel, Inc. The sales employes turned both prizes over to the Guild. Another boatload of 1400 children had the same treat August 6. At the left is S. S. Duryee, president of the Guild.

New Haven Gas Light Co. Wins Electrolux Award

"First place to New Haven for the greatest number of installations per 10,000 meters in class 2."

So ran the telegram received by New Haven Gas Light Co. after the completion of the Electrolux birthday contest.

During the contest months, April, May and June, the New Haven Company sold 847 Electrolux Refrigerators, a job to be proud of. Class 2 included companies throughout the country having over 30,000 meters but excluding a few large metropolitan companies. A gigantic birthday cake will be delivered to the Sales Department in September in recognition of their having achieved first place.

The birthday contest was held in connection with the National Refrigerator Program of the American Gas Association. Mr. Naschold, Sales Manager of the Company is a member of the A. G. A. Committee.

Dealers' Sales Total $600,000 in 7 Months

Close to $600,000 worth of gas appliances were sold by dealers cooperating with Brooklyn Union Gas Company during the first seven months of this year. The dealers' sales are running $100,000 ahead of last year and their total on July 31 was the highest ever reached on that date since the dealer-cooperation plan was inaugurated eight years ago.

The seven months' total fell short of the $600,000 mark by only $12.41. Each of the seven months was a record breaker, in that sales were the highest ever reached for the month in question.

During July the dealers sold $113,021.51 worth of appliances. The amount was 21 per cent above that for the same month a year ago.

Penn Electric Announces Personnel Changes

Paul O. Penn, formerly manager of Penn Electric Switch Co.'s Detroit Office, has been named assistant to Malcom E. Henning, Penn executive vice-president, in an announcement issued recently by Mr. Henning. Mr. Penn will be located at the company's new office and factory at Goshen, Indiana.

Mr. Henning also announced the appointment of P. L. Tolerton as manager of Penn's Detroit office and stated that the transfer of Mr. Penn and addition of Mr. Tolerton to their staff have been made to enable Penn Electric Switch Co. to maintain a closer contact with customers in the heating, refrigeration, air conditioning, pump and air compressor fields.

Mr. Tolerton, a graduate engineer, has had much experience in the control field. For several years he was in charge of Penn's Chicago office. He also has had broad sales and engineering experience in the commercial refrigeration field.

Mr. Penn, also a graduate engineer, has been in charge of our Detroit office for six years. Prior to that time he was connected with Westinghouse Electric and Manufacturing Co. in the heavy traction sales division.

INDUSTRIAL GAS BOILERS

Tubular or Flueless
¾ to 45 H.P.

P. M. LATTNER MFG. COMPANY
CEDAR RAPIDS, IOWA

Dresser Appointments

W. L. Shelgren, according to a recent announcement from S. R. Dresser Manufacturing Company of Bradford, Pa., is now their sales representative for the State of Michigan (except Detroit). The appointment became effective August 1.

With an experience in pipe-joint engineering and knowledge gained with Dresser over a period of eleven years, Mr. Shelgren will be able to give gas, oil, and water companies in this territory the benefit of his knowledge in the solution of pipe-joint problems. His headquarters will be at the home office in Bradford, Pa.

W. L. SHELGREN

J. K. CROWELL

Mr. J. K. Crowell, ill since last November 1, has resumed active work as Gas Engineer with the Company at Bradford, with whom he has been connected for the past eight years. Within a short time, he expects to be renewing contacts among his many friends in the gas industry, where he is well known.

Joins A.G.A. Testing Laboratories

Louis O. Howell has joined the research staff of the A.G.A. Testing Laboratories in Cleveland. For the past ten years, Mr. Howell was industrial engineer for the Southern California Gas Company. His work will be on research problems with specific relation to the industrial utilization of gas.

Brooklyn Union Gas Co. Refrigerator Sales

During the first seven months of this year the Brooklyn Union Gas Company sold 7,704 refrigerators. In the 12 months of 1936 sales totaled 9,411 refrigerators.

All sizes up to 3,400 cu. ft. capacity

Meters
Diaphragms
Repairs
Provers
Pumps
Calorimeters
Wet Meters
Gauges
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METER REPAIR PARTS

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SAMPLES AND PRICES GLADLY SENT

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BUSH TERM. BLDG. 4, BROOKLYN, N. Y.

HEATING BUNKER "C" OIL

for carburetting gas requires high pressure and high temperature.

ANDALE BOWED TUBE HEATERS

remain tight and are easily cleaned. These are the requirements for continuous satisfactory operation.

ANDALE COMPANY

1600 ARCH STREET
PHILADELPHIA

EXPANSION IN BUILDING

With a rise in residential building for the next five years indicated, the potential housing needs deferred through the long depression become of importance to investors seeking representation in accelerating industries. Population movements, increasing marriages, and other factors of vital influence in the growth of the building industry are discussed in a Brookmire Forecaster.

●

Investors may secure copies without obligation.

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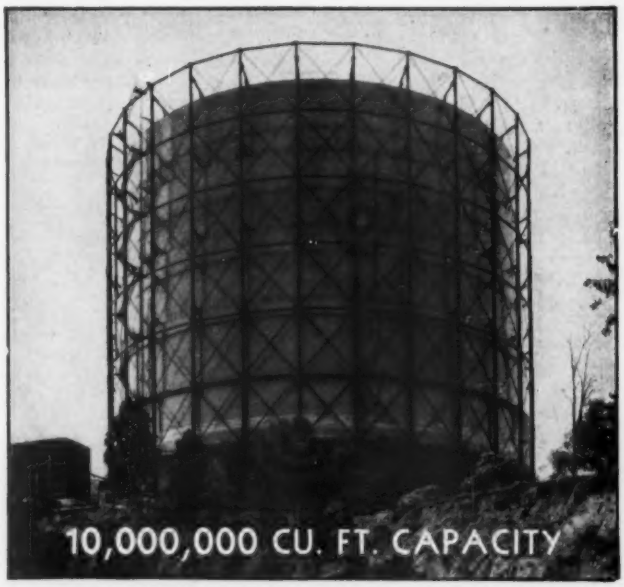

HIGH PRESSURE **GAS HOLDERS** LOW PRESSURE

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INTEGRITY GOOD WORKMANSHIP FAIR DEALING

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Equipped with Improved Patented Locking Sleeve, which locks both handles to the pipe. Stopper cannot slip. Gas cannot pass.

Safety Gas Main Stopper Co.

523 Atlantic Avenue, Brooklyn, New York

Canadian News

Brownsville, Ont.—Gas experts from all parts of Ontario have viewed with much interest in recent weeks the amazing new natural gas field discovered near here this spring. Since the well was discovered 39 wells of a producing type have been put into use with an open production of 57,000,000 cubic feet of gas per day. The average production of the wells, all of which are confined to an area two miles square, runs from 200,000 feet per day for the lowest to 6,000,000 feet per day for the highest.

The gas of the field has quite a high sulphur content, but the Oxford Pipe Line Co. has erected a purification plant at the field.

Toronto, Ont.—The consolidated income statement of Dominion Gas & Electric Co. and its subsidiaries for the 12 months ended June 30, 1937, shows net income of $251,620 after charges, as compared with $336,921 for the corresponding 12 months one year previous. In spite of the sum of $248,548 expended in a plant expansion program in the six months ended June 30, net working capital in the six months improved from $988,363 to $1,055,890.

Petrolia, Ont.—The Union Gas Company of Canada, Ltd., is replacing considerable of the pipe in the municipality with pipe of larger capacity. Over 22,000 feet of pipe in Sombra Township, directly north of Wallaceburg, will also be replaced by the same firm.

St. Thomas, Ont.—Faced with the mounting cost of coal, the City Council recently decided to have the Dominion Natural Gas Co., furnish gas for the boilers in the greenhouses at Pinafore Park. The estimated cost of gas was about $150 a month or $975 a year. Under the present system of heating the greenhouses, the coal costs about $550 a year and in addition outside labor is required 56 hours a week for about 27 weeks to fire the boilers at night, at cost of about $710 a year, bringing the total heating costs to nearly $1,200.

The city will also equip the water heater at the same park with a large natural gas burner, it being found that electrical heaters are both expensive and unable to supply water sufficiently rapid enough for picnics.

Toronto, Ont.—Consumers Gas Co. has, according to an audit by the City Auditor's department, piled up deficits totalling $2,316,075 since the year 1931.

Increased operating expenses, higher wage payments, greater costs of coal and other materials, and higher taxation, have made it necessary for the company to raise the price of its product by 10 cents per thousand feet. In support of its contention that it is entitled to a higher rate, the firm claims that the customs duty on coal being increased from 50 cents to 75 cents a ton has added $415,013 to costs of raw material.

The raise in price was sustained by the Board of Control.

Glencoe, Ont.—The Union Gas Co. of Canada, is arranging to supply the town with natural gas before the arrival of winter. The demand for natural gas for general domestic purposes is becoming keener. Though in possession of a plentious supply of hydro power the residents believe that natural gas would be more satisfactory for cooking purposes and in water heaters.

Catalogs

Control Valves. Information is given regarding constructional features, operating characteristics, and the various types of Bristol's Synchro Diaphragm Valves and their application to typical installations, where temperature, pressure, liquid level, flow and humidity are controlled pneumatically. Data on sizes, dimensions and valve metals are also included. The Bristol Company, Waterbury, Connecticut. Bulletin No. 461.

Thermostatic Controls. Catalog showing the full line of Klixon thermostatic controls has just been released by Spencer Thermostat Company of Attleboro, Massachusetts.

Included in this catalog are gas actuated controls for heating appliances, room thermostats, limit controls for steam, hot water, and warm air heating systems, a number of thermostatic electric switches and cut-outs for built-in applications, thermal relays, self-closing temperature and pressure relief valves for hot water supply systems, etc. Many mounting accessories offering unusual flexibility in the application of these controls are also shown.

GPM
IRON HYDROXIDE
The mark of unerring dependability in purification
☆
GAS PURIFYING MATERIALS CO.
L. I. City, N. Y.
& Providence, R. I.

Automatic Controls. Mercoid controls for automatic heating systems including Sensatherm, Pyratherm, Type D. A. double adjustment control, and the details of the sealed Mercoid switch are well illustrated and described in catalog issued by the Mercoid Corporation, 4201 Belmont Avenue, Chicago.

Turbine pumps are described and inlustrated in bulletin 260-B11C just issued by Roots-Connersville Blower Corp., of Connersville, Ind. Special emphasis is placed on their wide application throughout the industrial field.

Cutaway views are presented in the center spread showing the various types of construction, and the accompanying text discusses the numerous exclusive features shown by the cuts. Type "T" pumps are offered in bronze-fitted, Tempaloy-fitted, all-iron, and all-Tempaloy bronze, but special pumps of Monel, stainless steel, etc., can also be supplied.

Arc Welding. Information on the construction of pipe lines by electric welding for transportation of oil, gas and water is contained in a new bulletin of The Lincoln Electric Company, Cleveland, Ohio. Entitled "Building Better Pipe Lines Faster at Less Cost by Shielded-Arc Welding," it contains 14 pages 8½ x 11 inches and is profusely illustrated with photographs of pipe lines under construction by electric welding. A brief foreword reviews the progress of electric welding in pipe line construction from 1928 when the first major pipe line was electric welded up to the present time.

Meehanite Metal as used in iron castings which go into the construction of Cooper-Bessemer engines and parts is discussed at length in a recent bulletin of Cooper-Bessemer Corporation, Mount Vernon, Ohio. Graphs and tables show physical properties as compared with gray iron and alloy iron. Illustrations show methods and facilities for production.

Gas Engines and Compressors. Bulletin 309 describing Type G.N. Gas Engines of 3, 4, 6 and 8 cylinders is issued by Cooper-Bessemer Corporation, Mount Vernon, Ohio. The advantages of this convertible type are well set forth. Another bulletin describes 30-70 B.H.P. convertible gas or Diesel two-cycle direct driven compressors.

Flow Meter Catalog

A new 40-page catalog on Bristol's Electrical and Mechanical Flow Meters is available for distribution by The Bristol Company, Waterbury, Conn. These instruments are for recording, integrating, controlling, and indicating the flow of steam, liquids or gases.

Details are given regarding the new Electric Flow Meter and its operation, using Bristol's Metameter principle of telemetering. Also, complete information is included on Bristol's Mechanical Flow Meters. The publication contains useful engineering data for reference.

Gas Customers Gain in First Six Months

Domestic customers served by manufactured and natural gas utilities totalled 15,787,500 on June 30, an increase of 223,000 during the first six months' interval, it was announced today by Paul Ryan, Chief Statistician of the American Gas Association.

This gain in customers is reflected in the fact that a total of 823,000 gas ranges were sold in the country during the first half of 1937. This was an increase of some 22 per cent over the first six months of 1936. Approximately 80 per cent of such sales consisted of relatively high priced ranges incorporating modern automatic features, such as oven-heat control, etc.

Revenues of manufactured and natural gas utilities aggregated $433,849,700 for the first six months of 1937. This was an increase of 4 per cent over the corresponding period of 1936. Revenues from industrial and commercial users increased 11.4 per cent, while revenues from domestic customers gained 1 per cent.

Manufactured gas industry revenues totalled $186,246,400 for the first six months, practically unchanged from a year ago. Revenues from industrial and commercial uses of manufactured gas gained 6 per cent. Revenues from domestic uses, such as cooking, water-heating, refrigeration, etc., were 2 per cent less than for the corresponding period of 1936.

Revenues of the natural gas industry for the first six months amounted to $247,603,300, a gain of 7.2 per cent over a year ago. Revenues from industrial uses increased 18 per cent, while revenues from domestic uses gained 3.1 per cent.

F. J. Schafer and Others Retire Under Pension Plan

Frederick J. Schafer, vice president of the Southern California Gas Company and one of the oldest members of the gas industry in point of continuus service in California is among the fourteen men who retired on September 1 under Southern California Gas Company's pension plan. On the day of his retirement, Mr. Schafer completed thirty years and eight months in the service of the Southern California Gas Company and over forty-two years in the service of the gas industry.

He began his career in 1895 as a yard man in the Center Street gas plant of the Los Angeles Lighting Company, predecessor of the Los Angeles Gas and Electric Corporation. He rose rapidly through various positions until, in 1904, he was made superintendent of the gas works. In 1912 he became general superintendent of the Southern California Gas Company.

Under his supervision the first natural gas was brought to Los Angeles in 1913 and mixed with manufactured gas for sale to Los Angeles consumers. The method of mixing natural gas with manufactured gas, and later of "reforming" natural gas—introduced in 1918—were both perfected by Mr. Schafer. His foresight and engineering skill were important contributing factors in the development of the present far-flung natural gas systems.

Mr. Schafer rose successively through the positions of assistant general manager and general manager; and on June 10, 1930, he was made vice president in charge of manufacturing, distribution and sales, which position he relinquishes on his retirement.

In 1926 he served as president of the Pacific Coast Gas Association and for a number of years was a member of the Rate Structure Committee of the American Gas Association.

Retiring with Mr. Schafer is F. C. Ingram, assistant manager of the customers' department of the consolidated company, who entered the employ of the City Gas Company in 1908.

J. P. Wells, sales representative in the consolidated company, is a third one of the retiring group with a long service record.

The Mystery Chef, radio's famous cooking authority visited Brooklyn and Queens during the latter part of August. He was accompanied on his appearance by his wife as well as his two dogs, about whom he has spoken on the radio. Approximately 1,000 persons interviewed the Mystery Chef during his four appearances. Three of his visits were to offices of The Brooklyn Union Gas Company, while the fourth was to the establishment of a plumber-dealer, George Harrington, who is a special collection representative of the gas company.

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First Commercial Electrolux Unit Installed in Brooklyn

An event of signal importance to the gas industry, in that it heralds the opening of an entirely new market for gas, took place in Brooklyn recently in the sale of one of the new Electrolux commercial refrigeration units, recently announced by the Servel company.

The installation will be the first of its kind to be made anywhere in the United States. It represents the first invasion of the large commercial refrigeration field by a gas-operated unit.

The survey also showed that the new Electrolux unit, which has a refrigerating capacity equal to that produced by the melting of 500 pounds of ice in 24 hours, would be more than adequate to maintain a temperature of 38-40 degrees Fahrenheit in the dairy compartment and a temperature of 40-45 degrees Fahrenheit in the fruit and vegetable compartment. The differing temperatures will be achieved through the use of two secondary evaporators, one in each compartment.

Washington Gas Light to Install New Koppers-Western Generator

The gas production capacity will be increased at the East station of The Washington Gas Light Company, Washington, D. C. This work will consist of an extension to the generator house and the installation of a 12-foot diameter Koppers Western A. B. C. mechanical grate generator, with an 11-foot diameter carburetor and superheater of considerably greater height than normal. The set will be equipped with reverse air blast and backrun connections, a double inlet type of backrun valve being used in the wash box. A waste heat boiler, complete with mountings, will be built, as well as a new blower room with a turbo blower unit, blast piping, gas main, live and exhaust steam, hydraulic and oil piping.

W. F. Rockwell, Jr., Tells of Laboratory Tour

Willard F. Rockwell, Jr., as representative of the Pittsburgh Equitable Meter Company, and Merco Nordstrom Valve Company, returned in July from the "Laboratory Tour" of Industrial Europe, held under the auspices of the National Research Council, Division of Engineering and Industrial Research. Mr. Rockwell is the son of Col. W. F. Rockwell, President of the Pittsburgh Equitable Meter Company. The tour included trips behind the industrial scenes in England, France and Germany. Included in the group were American business executives from various industries.

The tour, lasting six weeks, devoted its time to laboratory visits, including laboratories of private industry, government, trade associations and universities. One of the highlights of the trip was the reception and luncheon for the group given by the French Minister of Foreign Affairs.

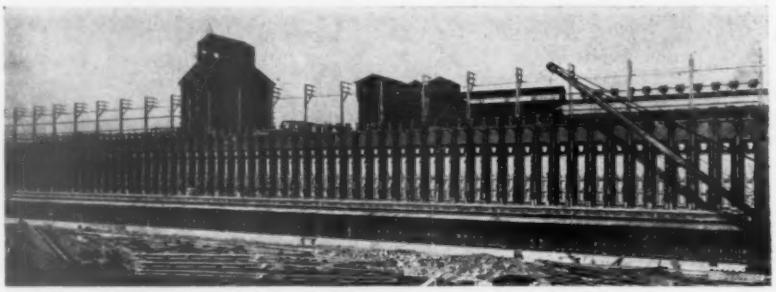
W. F. ROCKWELL, JR.

Commenting on the tour, its benefits and the conclusions drawn, Mr. Rockwell states, "The problems of scientific research in Europe differ from those in America, largely due to the present policies of re-armament and economic self-sufficiency. The scarcity of certain natural resources, as oil for example, is causing research to probe for new and synthetic materials.

"England has established government laboratories for similar lines of industry which are supported both by the government and private industry. Specific problems of industry are dealt with in these laboratories. This policy however has not done away with private industrial research but has helped the small industries that are not able to maintain well-equipped laboratories.

"Research in Germany is carried on under strict government supervision. The attempt at nationalism has shown a distinct effect on all research in Germany. Thirty-two Kaiser Wilhelm Institutes of Scientific Research are working hand in hand with industry in the attempt to develop synthetic products as substitutes for those which must be imported.

"In the field of pure science Europe is maintaining her position of prominence through the National Physical Laboratories, Cavendish Laboratories, the College of France, Radium Institute, Pasteur Institute, and the Kaiser Wilhelm Institutes, not to mention many others. Lord Rutherford, Sir James Jeans, the Joliot-Curie's, Jean Perrin, Langevin, and the many other noted scientists of this generation are working for even greater discoveries than they have already made and are training young men and women to carry on their work."



New Becker Type Ovens for T.C.I.

A daily coal charge of 1590 tons to a new battery of 73 coke ovens recently placed in operation by the Tennessee Coal, Iron and Railroad Company, subsidiary of United States Steel Corporation, at Birmingham, Alabama, will produce 1,110 tons of furnace coke; 20,263,000 cu. ft. of gas; 14,771 gallons of tar; 17.7 tons of ammonium sulphate; 5,207 gallons of light oil, and 3,123 gallons of motor benzoil. It is No. 2 of the two new batteries and is the first unit completed in a broad expansion program of the Tennessee Company which will be culminated by the completion of a new tin plate mill. Its companion, No. 1, is nearing completion and will be ready for operation in the fall. Each of these batteries consists of Becker type ovens and was erected by the Koppers Construction Company of Pittsburgh. Each oven is 36 feet, 7 inches long, 18¼ inches wide and 12 feet high.

Appalachian Coals Inc. Elects New Officers

R. E. Howe is the new president of Appalachian Coals, Inc., having been elected by the directors on August 18. He succeeds the resigned Management Committee, consisting of John A. Howe, chairman; W. J. Cunningham and L. E. Woods, the members of which continue as directors of the corporation. A. L. Brown, manager, marketing division, was elected to the board and elevated to the vice presidency, succeeding Mr. Howe, who had been serving as vice president and treasurer. W. M. Wilshire was elected secretary-treasurer. T. A. Day, assistant secretary, was re-elected, but now will devote more time to the advertising and sales promotion activities of the corporation in his capacity as manager of the advertising and publications department.

Mr. Howe opened the offices of Appalachian Coals, Inc., in Cincinnati on April 17, 1933, at which time he was secretary and assistant treasurer. Later, he was named secretary and treasurer, serving in that capacity until June, 1936, when he was elected vice president and treasurer. Before joining the ACI organization, Mr. Howe was secretary-treasurer of the Southern Appalachian Coal Operators' Association with headquarters at Knoxville, Tenn.

Vice President Brown was one of the first employees of the marketing division and has served as its manager since 1933. Prior to joining the ACI staff, Mr. Brown, an engineer, was a sales executive of Consolidation Coal Company.

Secretary-Treasurer Wilshire, once a member of the marketing staff and a special representative of the marketing division, at one time was president of West Virginia Coal & Coke Corporation.

Immediately after his election to the presidency, R. E. Howe stated, "Prices will be made on a more scientific basis in the future, with the assistance of the minimum prices to be established by the National Bituminous Coal Commission."

Lincoln Electric Company Opens West Virginia Office

The Lincoln Electric Company, manufacturers of arc welding equipment, Cleveland, Ohio, announces the opening of a new sales engineering office at 400 North Street, Bluefield, West Virginia. The new office will be in charge of Wm. H. Schuster, who for the past year, has been assistant welding instructor in the Lincoln Welding School at Cleveland. He will maintain welding consultation and supply service for the coal fields of West Virginia, Virginia and Kentucky.

While a great deal of Mr. Schuster's time will be devoted to serving the users of arc welding in the coal fields of West Virginia, Virginia and Kentucky, his experience will be found helpful by industrial firms in the territory who have problems in the application or use of electric welding.

Other Lincoln appointments include Walter Dougan Wood, Jr., to the sales staff of the Philadelphia Office. Mr. Wood is a graduate of Cornell University, class of 1936. Under the supervision of G. R. Johnson, manager of the Philadelphia office, Mr. Wood will work with Messrs. O. P. Lang, H. H. Stahl, R. J. Cogan, W. Sivyer, and P. V. Galambos, in supplying arc welding users in Philadelphia and vicinity with complete welding supply and engineering service.

A Hit With Every Salesman!

Two Books By
Charles W. Merriam Jr.

Handy informative volumes written in practical language, giving authoritative facts and figures in an entertaining way on gas water heaters and ranges. They treat of heating fundamentals and all details of appliance operation. A real source of "PEP" for every salesman.

HOUSEHOLD GAS WATER HEATING

Nine chapters of the true essence of this subject.

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What Size Heater
Automatic Heater Accessories
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Hot Water—For What?

"A Book like this has long been needed to enable our salesmen to present a sound and convincing attack on this most worthwhile business of our industry."—A. M. Beebee, Gen. Supt. Gas Dept., Rochester G & E Co., Rochester, N. Y.

"A Real contribution to the gas industry."—R. A. Koehler, Chairman, A.G.A. Water Heating Committee.

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DOMESTIC GAS RANGES

A reference book of great value to every range salesman and for sales department study and discussion groups.

CONTENTS

Relative Merits of cooking equipment using different fuels
Types of Ranges
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New Carbon Black Plant for Oklahoma Panhandle

A $1,000,000 carbon black plant which will use up to 60,000,000 cubic feet of gas daily, to be located in Texas County in the Oklahoma panhandle, was assured when the Oklahoma corporation commission recently granted Stanley March, jr., Amarillo, Texas, a 10-year permit to contruct and operate such a plant. The permit was signed by Redford Bond, commission chairman, and A. S. J. Shaw, a member.

Earl Foster, conservation attorney, said the plant will probably be built in several units, all in Texas County, because of the extent of the gas supply, and will probably give employment to upward of 100 men.

Marsh, who owns 100,000 acres around Guymon, together with acreage in southwestern Kansas and northern Texas amounting to 130,000 acres, proposes to utilize the vast gas pool which lies under nearly all of Texas County, which he said would surely be drained by Texas and Kansas wells on either side, if some conservation was not planned. It was pointed out to the commission few wells have been drilled in this area; there are no pipeline connections, and the only present demand is for the small amount necessary to supply domestic needs in nearby cities. Twenty-five or thirty wells probably will be drilled, it is said, in order to use 60,000,000 feet of gas for the manufacture of natural gasoline and carbon black.

The corporation commission's order requires Marsh to purchase all natural gas produced and offered for sale in the vicinity of the plant, without discrimination; or, if unable to purchase all the gas, to make purchases on a rated basis among those offering to sell. The order pointed out that farmers in this district —the heart of the ravaged dust bowl area —are in need of a market for natural gas which underlies their land, payment for which would care for obligations. Such an industry in this area would bring about a new and much needed source of revenue.

Appliance Service School for Oklahoma Natural Gas Company

Dr. F. E. Vandaveer, Supervisor of the American Gas Association Testing Laboratories, Cleveland, participated in a four-day appliance service school held by the Oklahoma Natural Gas Company, Tulsa, Oklahoma, July 20-24. H. A. Newton, Sales Manager of the Tulsa District presided, with Miss Mildred Clark, Home Service Director, assisting. Home Service women and gas company service and installation men attended the meetings.

"The A.G.A. Laboratories, Their History and Testing and Certification Program" was the subject of Dr. Vandaveer's first talk. Flues and vents, water heaters and water heater adjustments, gas range improvements and changes, and the effect of such changes on servicing and adjustment, space heaters, central heating appliances, gas saving equipment, and the comparison of gas and electricity for cooking were discussed in later talks.

Other speakers at the Service School were L. A. Farmer, Superintendent of Distribution, and John Warden, General Sales Manager of Oklahoma Natural Gas Co., Dr. Sidney Born, Director, Petroleum Engineering School, University of Tulsa, Roy Parker, Carl Dean, and Mildred R. Clark of the local gas company.

Following the Gas Company Service School in Tulsa, Dr. Vandaveer gave a lecture at the University of Missouri summer session, on modern gas equipment and the Laboratories' Testing and Certification program.

news column copy for forty newspapers and sales promotion activities throughout the sixty towns served by the company.

Oklahoma Natural Gas Co. Wins Federal Contract

A contract to supply gas to the Will Rogers Courts, federal low-cost housing project near Rotary Park, Oklahoma City, was recently awarded in Washington to the Oklahoma Natural Gas Co.

Because this firm holds the franchise for Oklahoma City, it was favored by the

At the Home Service Training Course, left to right:—Mildred R. Clark, Home Service Supervisor, Tulsa; Pauline Sherwood, Assistant Home Service Director, Oklahoma City; Harryette Hunter, Home Service Director, Oklahoma City; Sarah Garrison, Assistant Home Service Director, Oklahoma City; Doris McKnight, Home Service Director, Enid; Marian Goss, Home Service Director, Muskogee; Louise Anderson, Home Service Director, Tulsa; Mary Frances Reece, Assistant Home Service Director, Muskogee; Ruth Owen, Assistant Home Service Director, Tulsa; Gwen Workman, Secretary to Miss Clark; Rosemary Locke, Home Service Director, Tulsa

Oklahoma Natural Gas Company Enlarges Home Service Department

The increasing amount and popularity of Home Service work in the Oklahoma Natural Gas Company territory has necessitated enlarging the staff according to an announcement by Mildred R. Clark, Home Service Supervisor for the company.

New members of the staff, all of whom are Home Economics Graduates, include Miss Pauline Sherwood and Miss Sarah Garrison of Kansas State College at Manhattan, Kansas; Miss Ruth Owen, Oklahoma University at Norman, Oklahoma; and Miss Mary Frances Reece, Texas State College for Women, at Denton, Texas.

The accompanying picture was taken at the close of the recent two weeks' training course for the new staff members when the entire staff was called into Tulsa headquarters to plan the next year's work.

The intensive training course included not only specific training in Home Service work, but training in all phases of the company's operations presented by heads of various departments. "The importance of a complete understanding of all phases of the business is essential to a well rounded and effective Home Service program", Miss Clark stated, therefore, time invested in adequate training reflects itself in increased sales and good will toward the company.

This company's Home Service program includes an extensive Home Call and demonstration program in a dealer cooperative plan as well as supervision of four model kitchens and auditoriums for the use of the public. The program also includes Kitchen Planning, preparation of

public works administration over several other companies.

Thomas H. Sterling, district manager for Oklahoma Natural said the housing project would use about 40,000,000 cubic feet of gas annually, which will be sold to the government through one meter at regular industrial rates; 45 cents per 1,000 cubic feet for the first 100,000, then 18 cents. Sterling estimated the average cost to the government would be about 21 cents a thousand. The domestic rate in Oklahoma City is 45 cents per thousand.

J. Whitt Johnson, manager of the project, said the apartments will be rented heat-furnished, with the cost pro-rated among the apartments as an element of the rent. The bulk of the gas used will go toward operating the five heating plants to be used by the apartments.

The company extended its mains to the project a year ago, and will begin construction of a building to house its measuring and reducing equipment as soon as confirmation of the contract arrives from Washington. Mr. Sterling said the building will match the courts in architecture. He said plans have been received from Washington.

Natural Gas Meters Relocated

All gas meters formerly located within the school buildings in Enid, Oklahoma, have been removed as a safety step, Enid school officials recently reported.

An inspection showed some meters to be situated inside the basements near heating equipment. It was believed the change would not only insure safety, but would enable each building engineer to check more closely on leaks when they occur in the heating system.

Campaign Built Around "Four Aces of Home Comfort"

Opening rally of Portland Gas & Coke Company's colorful "Four Aces of Home Comfort" campaign which resulted in the sale of 1141 appliances during six weeks. Standing on the platform are C. B. Maxfield, Northwest sales representative for the Cribben & Sexton Company, and Miss Dorothy Schwarz of the gas company's home service department.

With the ace of hearts signifying modern gas cookery, the ace of spades automatic storage water heating, the ace of diamonds gas refrigeration and the ace of clubs house heating, Portland (Ore.) Gas & Coke Company staged an effective spring sales campaign around the theme, "Four Aces of Home Comfort."

Participating in the campaign were more than 100 dealer stores with a total of 800 persons in their employ and 735 members of the gas company organization. Company salesmen were divided into two Portland teams and a team which included sales forces in Oregon City, Salem, Hillsboro, and Vancouver, Wash., territories.

The campaign achieved 97.8 per cent of an ambitious quota in accounting for the sale of 334 tank water heaters, 141 storage water heaters, 297 ranges, 132 refrigerators, 84 hot plates, 25 conversion burners, 67 furnaces, 6 radiant heaters, 36 Gascotrols (automatic hot water controls), and 17 circulating heaters—a total of 1141 appliances and an estimated annual revenue of $29,014.00.

All in all, the campaign proved to be a colorful and well balanced selling activity which not only sold the public on the idea of "four aces of home comforts," but sold the appliances as well.

Built as it was around a theme which offered a wealth of promotional ideas the campaign was backed by an intensive advertising program which included 50 colorful billboards, a full newspaper schedule, banners on gas company and dealer trucks, 85,000 bill stickers, thousands of folders and scores of window displays. The campaign also took full advantage of current national magazine and radio advertising.

Steam Power Cheaper Than TVA

By a vote of two to one the Tennessee Commission permits the Tennessee Electric Power Company to build a $2,000,000 steam power plant at Nashville. The Commission is convinced that the cost of production in the proposed plant will be less to the company than to purchase power at the prices proposed by the Tennessee Valley Authority.

The company will next apply to the Federal Power Commission for approval of its project.

Natural Gas for Virginia

The Virginia State Corporation Commission recently granted a charter to the Dominion Gas Corporation which, according to the press, plans to supply natural gas to most of Virginia, including Richmond. It is proposed to lay transmission lines in Rockingham County on the West Virginia border and extend them to practically all the principal towns in the eastern and southern area, provided they wish the service, including Ashland, Richmond, Petersburg, Norfolk, Portsmouth, Newport News, Hampton, Williamsburg, and others.

New Customers Dept. for Peoples Gas Light & Coke Co.

Several months ago, the Peoples Gas Light & Coke Company began to formulate a plan whereby a faster and more efficient service could be given to customers making personal calls to transact business at the Main Office. After careful study, it decided to consolidate the personal call work of the Credit and Collection, Customers' Order and General Service Departments to provide a single point of contact service and thus eliminate about 75,000 trips between these departments by customers each year.

On July 12th, the Customers' Department was officially announced with Mr. C. L. Sullivan being appointed as Superintendent. During the first three weeks, the new department demonstrated that it can handle any variation in the volume of business from day to day or from hour to hour without requiring the customers to wait for more than two or three minutes in the "waiting lounge" which has been furnished similar to the rest of the department.

The department is equipped for a maximum personnel of thirty-one employees, which is somewhat greater than its usual requirements. Thus, as the number of customers vary, employees who have been trained in the work of the department are called from their departments to assist with the work during the peak periods. On Monday, July 19th, the department served one thousand and ninety-four customers with about three hundred and thirty coming into the department between the hours of eleven-thirty to one-thirty.

The customers are met as they enter the department by ushers who ascertain the nature of their business and escort them to the available interviewers These interviewers are trained in all phases of the Company's service to the public and are equipped to give prompt service whether it be an order to turn on the gas, a request for a duplicate bill, an inquiry concerning their account or a service adjustment of any kind.

CONVENTION CALENDAR

September

Week of 27th—American Gas Association, annual convention. Cleveland, O.

Midwest Section, National Bottled Gas Association — Cleveland, Ohio, during week of September 27.

October

National Bureau of Standards — Conference on Corrosion and Protection of Pipe Lines, National Bureau of Standards, Washington, D. C. In October. Definite date to be announced.

18-21—American Society for Metals, Atlantic City.

Electrical Association of New York Votes to Include Gas Interests Within Its Membership

At a special meeting of the Members of the Electrical Association of New York, Inc. held at its Electrical Institute in Grand Central Palace on August 16th an overwhelmingly favorable vote was given for the inclusion of gas interests within the Membership and for a change in the name of the Association to the Electrical and Gas Association of New York, Inc.

Commenting upon the action taken, C. E. Stephens, President of the Electrical Association stated:

"The trend toward rendering gas as well as electric service to the public and in supplying the multitudinous appliances for their convenient use through a single source has become increasingly evident. The consolidation of the local electric and gas utilities, the marketing of gas appliances by manufacturers heretofore primarily engaged in producing only electrical products, and the distribution of this gas merchandise, as a natural sequence, through established electrical distributing channels and in turn through established electrical dealers, is already the practice in many cases. There also appears to be a distinct tendency for manufacturers of gas products to progressively engage in the manufacture of electrical products and to distribute these through their established distributor and retailer channels.

"With the common interests of these two industries so closely paralleling each other, it appeared desirable that the scope of the Electrical Association's activities be broadened to better serve those members already interested in both industries and those who might eventually also extend their present electrical interests to also include gas.

"This is now in prospect, a large majority of the members wholeheartedly expressing their wishes for the inclusion of the gas interests in the belief that immeasurable benefits will accrue to all members and to the public."

The objects of the Electrical and Gas Association of New York have been stated as being to act as the central organization and headquarters for the electrical and gas industries of the Metropolitan New York area; to promote the general interests of the electrical and gas industries; to deal with problems concerning or affecting these industries; to serve the public by coordinating the efforts of all branches of these industries toward rendering more extensive and efficient services; to organize and promote the development of markets for the Members of the Association; to promote closer social relationships with the Members of the Association; to promote mutual respect and cooperation between all branches of the electrical and gas industries; to promote appreciation by the public of the advantages to be realized from the fullest use of modern electrical and gas facilities and to direct the activities of the Association along constructive lines by the encouragement of sound, ethical and progressive business methods and practices.

The Association, whose headquarters are located in Grand Central Palace, 480 Lexington Avenue, maintains a comprehensive Electrical and Gas Institute comprising some 40,000 square feet of area where products of these industries are displayed and demonstrated. The Institute is open to the public daily excepting Saturdays and Sundays from 9:30 in the morning until 4:30 in the afternoon, during which hours regular inspection tours are conducted by competent guides. The uses of electricity and gas and the available appliances for such use are interestingly demonstrated and other information given at the Institute.

The Membership of the Electrical and Gas Association of New York comprises approximately 1,250 manufacturer, wholesaler, distributor, contractor, dealer, utility and other electrical and gas firms located within the Metropolitan New York area and members of their personnel. Its officers are: Frank W. Smith, Chairman of the Board, C. E. Stephens, Vice President of Westinghouse Electric & Manufacturing Company, President, A. Lincoln Bush, President of Belmont Electric Company, Inc., Vice President, Charles L. Harold, General Sales Agent of Brooklyn Edison Company, Inc., Vice President, E. F. Jeffe, Vice President of Consolidated Edison Company of New York, Inc., Vice President, J. H. McKenna, Eastern Sales Manager of A. J. Lindemann & Hoverson Co., Vice President, P. Schuyler Van Bloem, President and Treasurer of Viking Products Corporation, Treasurer, S. J. O'Brien, President of S. J. O'Brien Sales Corporation, Secretary and H. C. Calahan, District Manager of General Electric Supply Corporation, Assistant Secretary. Ralph Neumuller is Executive Vice President of the organization.

OBITUARY

CHARLES CASSELS ATWOOD

Charles Cassels Atwood, Assistant Chief Engineer of The Brooklyn Union Gas Company, died suddenly on August 21st at his home, in Flushing. He is survived by his widow, Gertrude Eddy Atwood. The funeral was private.

Mr. Atwood was born on Sept. 3, 1879, in Cleveland, and entered the gas industry soon after graduation from Cornell in 1901 as an employee of the Consolidated Edison Company. He resigned from his post as Superintendent of the Ravenswood Plant of that company to join the Bartlett Hayward Company as Assistant Gas Engineer. For this latter concern he was in charge of designing, constructing and operating toluol plants.

In 1918, Mr. Atwood began his service with The Brooklyn Union Gas Company. In addition to his duties as assistant chief engineer he became active in other fields, especially in the work of promoting employee welfare.

For 14 years he was chairman of the company's executive committee on safety and sanitation. Under his direction the committee developed in the various departments active interest and cooperation for promoting safety and health.

By employee and executives he was the one individual regarded as being mainly responsible for the successful fight waged against accidents.

Another of the activities in which Mr. Atwood's ability was displayed was the Employee Suggestion Plan. This project was started almost six years ago as a six-months campaign to prevent waste. The results of this endeavor prompted the company to transform it into an employee suggestion plan.

CHARLES HENRY HODGES

Charles Henry Hodges, first vice-president and member of the executive committee of American Radiator Company and chairman of the board of Detroit Lubricator Company, an affiliate of American Radiator and Standard Sanitary Corporation of which he was vice-president and a member of the executive committee, died August 7th, in the Massachusetts General Hospital in Boston. He was 77 years old.

Mr. Hodges, who was born in Detroit on October 26, 1859, was a pioneer in the development and manufacture of cast iron sectional radiators, having become affiliated in an official capacity with the Detroit Radiator Company in 1887.

A member of the executive committee and a director of American Radiator Company from the time of its organization until his death, Mr. Hodges was treasurer of the company until 1905 when he retired from active service because of ill health.

As treasurer of American Radiator Company at the time of its organization, Mr. Hodges was one of the four original officers of the company.

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Gas Power for Generating Electricity

(Continued from page 30)

now available that do much to eliminate this.

Distribution line sizes and pressures should be checked to determine if the gas volume is sufficient to provide fuel for a new gas engine load.

Granting that even a load is desirable we are often confronted with the proper application of a gas engine to do a particular job in a reliable and economic manner. The reliability is quite often the major factor in the customer's mind and any vision of savings are lost in fear of discontinued service. This is particularly true where the load is primarily refrigeration and a shut down period would prove disastrous.

A means of insuring continuous operation of such compressor and still showing a saving was recently described in a paper presented before the A.G.A. Industrial Sales Conference by Mr. R. S. Wenner, Ohio Fuel Gas Co.

The method described calls for a gas engine to motor hook up running in unison, the engine being in command and the motor, still on purchased energy, merely acting as an idler. Engine power is applied to the motor shaft until synchronous speed is reached at which point it no longer received power from the electric line and serves only as a jack shaft. Should the engine speed increase the motor becomes a generator and even though some of the current may go to the supply line, no harm is done since voltage and frequencies are similar. Electric meters provided with rachet bars prevents the reverse action of the electric meter.

The gas engine is becoming more highly developed each year, the general trend being towards more automatic operation that lends itself to flexibility—better materials that insure dependability—and improved engineering which makes the engine particularly adaptable to the use of natural gas as the fuel. These operating conditions are responsible for more and more varied accounts and engine application. Places that were formally thought not adaptable for engine application are now satisfied customers, such as theatres, hotels, apartments, drug stores, schools, office buildings, golf courses, greenhouses, metal plating and most any type business where electric current is used in quantities.

[1] *Charter Gas Engine #23.*

The Modern Proving Room

(Continued from page 69)

A particular feature of the system is of course its flexibility—i.e., automatic shift over from summer to winter, and vice versa with or without manual resetting of control instruments as determined by the occupants' desired. Further of course, and only partly demonstrated on this job—the concentrator and boiler may be located at any point from the air conditioner inasmuch as the mediums of transfer are steam and lithium chloride in solution form.

The Sprague Meter Company was the pioneer in cast iron gas meters. It was the first to bring to the gas industry semi-chrome leather which it developed and perfected over a period of years. Now it brings to the gas industry the air conditioned proving room—a forward step to eliminate as much as possible all hazards of chance and to obtain the ultimate in uniformity of performance of a device so sensitive as the modern gas meter. This Company at the cost of many thousands of dollars has again appeared as a pioneer.

Pipe Corrosion and Coatings

(Continued from page 24)

which is easily detected and repaired. A blow on a flexible pipe may cause cracking at several points due to motion none of which can be easily detected. The same precautions are desirable when transporting the pipe. Rigidity is a protection for coatings and wrappers.

The use of bags, rubber pads or other soft materials between layers of protected pipe adds to expense and is not necessary on properly designed protection. Mill and central station wrapped coatings are available which can be handled with ordinary care and not be damaged.

The unloading of wrapped pipe for cars, trailers, trucks or other means of transportation should not require the use of excessive precautions. Unloading crews can not be continuously supervised and therefore the protection should be required to withstand the degree of care which such men can be expected to continuously give. Pipe up to 2″ or 3″ diameter can be easily lifted by two men and therefore one is usually stationed at each end to lift the pipe onto skids or slings. The pipe may then be allowed to roll down skids or even dropped onto the ground. Properly wrapped enamels or cement shielded pipe can withstand such treatment without material damage.

Stock yards may be equipped with devices to eliminate the major portion of unloading damage without appreciable investment. The skids which would be at least three in number for 40 ft. lengths of pipe may be designed to curve upward near the bottom or at the stock pile end to slow the speed before the pipe is forcibly stopped. However successful unloading of protected pipe from railroad cars during the past eight years has been accomplished by having the skids at about a 30 degree angle to the horizontal with the ends resting on supports approximately 2 feet high and 3 old automobile tires on the ground beneath.

Four and six inch pipe in the same yards has been unloaded in much the same manner except that rope slings prevent the rapid descent of the pipe. Larger pipe is handled entirely by derrick. The smaller sized pipe has been handled in bunches by derrick without extensive damage.

The criterion of success in unloading without damage in the above instances was to test every length with a holiday detector and carefully analyze the reason for each defect so as to separate any application faults from physical damage.

(Continued in October issue)

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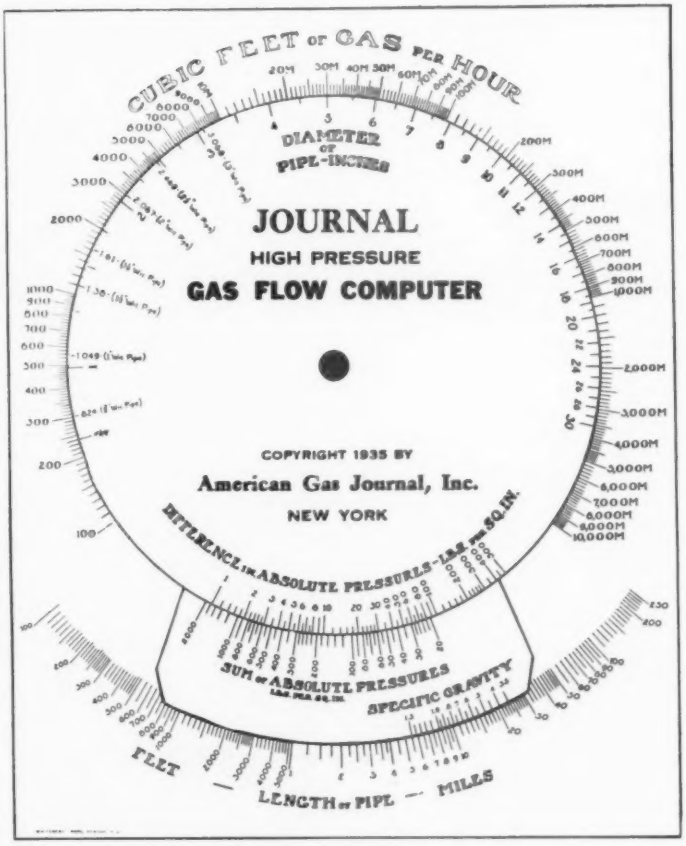

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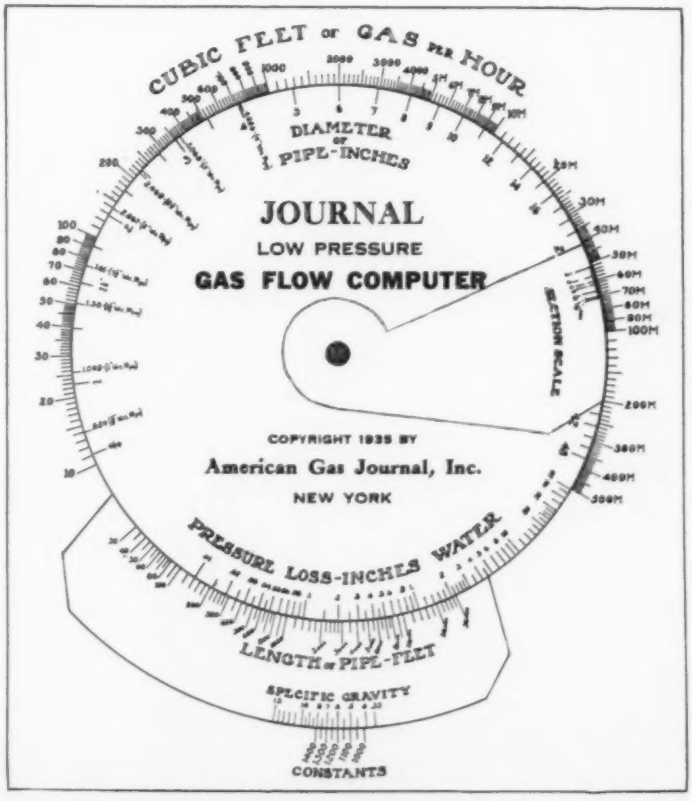

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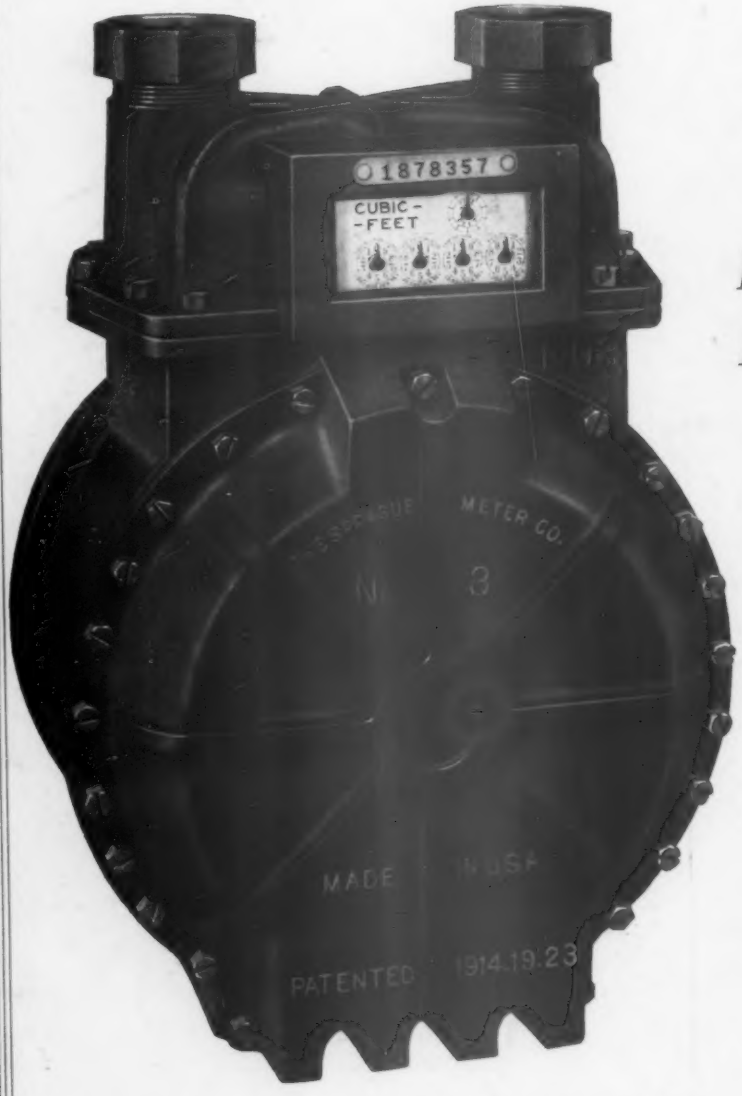

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